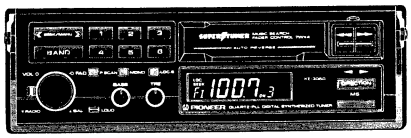
PIONEER

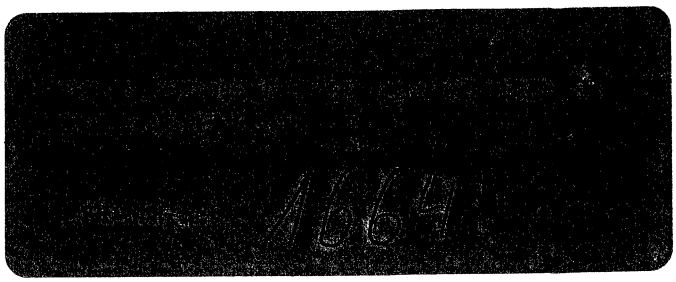
Service Manual



ORDER NO.
CRT1089

CASSETTE CAR STEREO WITH FM/AM ELECTRONIC TUNER

KE-3050QR UC



See the Service manual CX-166 (CRT1094) when servicing the cassette mechanism assy.

SPECIFICATIONS

General

Power source . . . . . 14.4 V DC (10.8 — 15.6 V allowable)
Grounding system . . . . . Negative type
Max. current consumption . . . . . 2.5 A
Dimensions (chassis) . . . . . 180(W) × 50(H) × 150(D) mm
[7-1/8(W) × 2(H) × 5-7/8(D) in.]
(front face) . . . . . 188(W) × 58(H) × 10(D) mm
[7-3/8(W) × 2-1/4(H) × 3/8(D) in.]
Weight . . . . . 1.4 kg (3.1 lbs.)

Amplifier

Continuous power output is 3.2 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.
Maximum power output . . . . . 8.5 W × 2/7 W × 4 (EIAJ)
Load impedance . . . . . 4 Ω (4 — 8 Ω allowable)
Tone controls (bass) . . . . . ± 10 dB (100 Hz)
(treble) . . . . . ± 10 dB (10 kHz)
Loudness contour . . . . + 12 dB (100 Hz), + 7 dB (10 kHz)
(volume: − 30 dB)

Tape player

Tape . . . . . Compact cassette tape (C-30—C-90)
Tape speed
. . . . . 4.76 cm/sec. (+ 0.14 cm/sec. −0.05 cm/sec.)
Fast forward/rewind time . . . . . Approx. 100 sec. for C-60
Wow & flutter . . . . . 0.13% (WRMS)
Frequency response . . . . . 50 — 14,000 Hz (± 3 dB)
Stereo separation . . . . . 45 dB
Signal-to-noise ratio . . . . . 52 dB (IHF-A network)

FM tuner

Frequency range . . . . . 87.9 — 107.9 MHz
Usable sensitivity . . . . . 12 dBf (1.1 µV/75 Ω, mono)
50 dB quieting sensitivity . . . 17 dBf (1.9 µV/75 Ω, mono)
Signal-to-noise ratio . . . . . 70 dB (IHF-A network)
Distortion . . . . . 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response . . . . . 50 — 15,000 Hz (± 3 dB)
Stereo separation . . . . . 35 dB (at 65 dBf, 1 kHz)

AM tuner

Frequency range . . . . . 530 — 1,620 kHz
Usable sensitivity . . . . . 18 µV (25 dB) (S/N: 20 dB)
Selectivity . . . . . 50 dB (± 10 kHz)

These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

Note:

Specifications and the design are subject to possible modification without notice due to improvements.

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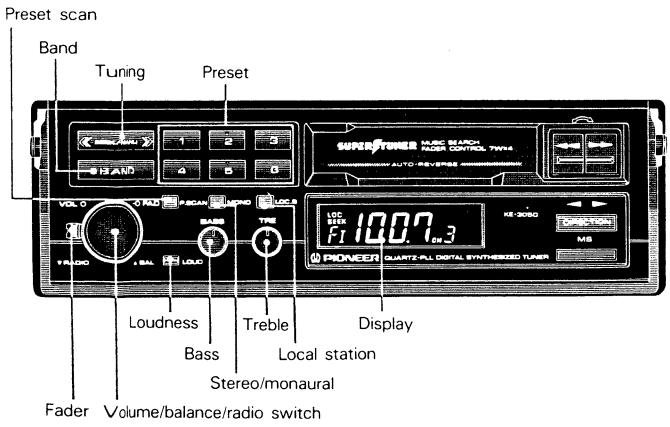
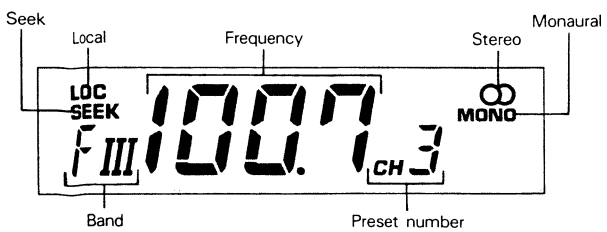
1. USING THE RADIO





- **Before attempting operation...**
- Reduce the volume by turning the volume control knob to the left.
- Set the fader control to the left horizontal.

1. Press the radio switch to turn on power and display the frequency.
2. Press the band switch to select the band.
3. Press both ends of tuning button with the tips of fingers and the seek tuning indicator will appear on the display.
4. Press either the left or right side of the tuning button to tune in the desired frequency. (Pressing the right side will increase the frequency.)
5. Adjust the volume and balance.
   To adjust the balance, first pull the knob until a click is heard. After setting to the desired level, push the knob in again to its original position.
6. Adjust the tone.

- **To enter a frequency into the preset memory...**

7. Hold down one of the preset buttons (1—6) for approximately two seconds. The frequency is stored in memory (assigned to the preset button pressed) once the preset number stops flashing on the display.
   Six FM1 frequencies, six FM2 frequencies, six FM3 frequencies and six AM frequencies can be entered.

• **Stereo/Monaural Switch**
This switch is used to change from stereo to monaural for FM broadcasts, and is usually left in the stereo position. When a stereo broadcast is received, the stereo indicator will illuminate. With the "Super Tuner" function, stereo broadcasts can always be enjoyed in their optimal reception mode. If excessive noise is present, pressing this switch allows monaural reception of the broadcast.

• **Local Station Switch**
Pressing this switch lowers the seek tuning reception sensitivity so that only stronger signals can be tuned in. This feature is convenient when driving through areas that have numerous radio stations. When this switch is depressed, the local indicator will be illuminated on the display.

• **Fader Control**
This control is used to adjust the balance between the front and rear speakers when using a 4-speaker system. Turning the control upwards decreases the volume of the rear speakers, while turning it downwards decreases the volume of the front speakers. With 2-speaker systems, set this control to a horizontal position.

• **Loudness Switch**
When playing back a tape or listening to the radio at low volume, the low and high tones are emphasized and more clearly heard by pressing this switch.

Seek Tuning

Press both ends of tuning button with the tips of fingers, and tuning to the next higher or lower broadcast on the band can be accomplished automatically by simply pressing either the left or right side of the tuning button. FM frequencies change in 0.2 MHz steps while those in the AM band change in 10 kHz steps.

Preset Scan Tuning

Pressing the preset scan button (CH indicator flashes) causes previously stored frequencies to be tuned in sequentially for eight seconds each. Press again when the desired frequency is tuned in to cancel preset scan tuning.

Preset Tuning

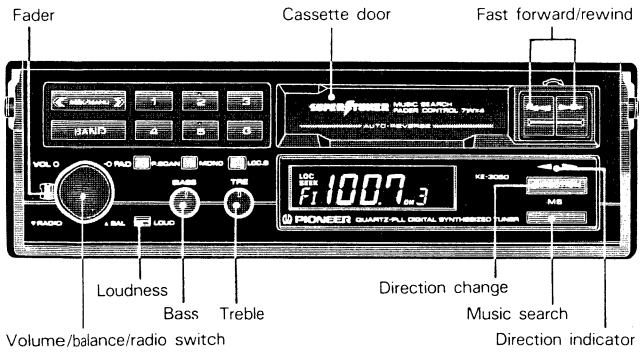
Pressing the preset button instantly tunes in the frequency programmed in the memory for that button.

Manual Tuning

When manual tuning is employed, FM frequencies change in 0.2 MHz steps while AM frequencies change in 10 kHz steps.

1. Press both ends of tuning button with tips of fingers and the seek tuning indicator will disappear from the display.
2. Change the frequency by pressing either the left or right side of the tuning button. Pressing the button once will change the frequency one step (see above). Continuously depressing either side of the button will successively change the frequency at the prescribed step.

2. USING THE TAPE DECK



• **Before attempting operation...**
• Reduce the volume by turning the volume control knob to the left.
• Set the fader control to the left horizontal.

1. Insert a tape into the deck to turn the power on and automatically begin playback. Even if the radio is on, the unit will automatically switch to and begin tape playback.
2. Adjust the volume and balance.
   To adjust the balance, first pull the knob until a click is heard. After setting to the desired level, push the knob in again to its original position.
3. Adjust the tone.
4. When tape playback reaches the end of the tape, playback will automatically switch from the side being played to the opposite side (ie. Side A to Side B or vice versa) (Autoreverse). To eject the tape during playback, simultaneously press the fast forward and rewind buttons.

• Do not try to eject the cassette immediately after insertion, as it will cause malfunction. Wait a few seconds.

• **Fast Forward/Rewind**
Since the transport can be in either direction, both the left and right high-speed tape transport buttons can be regarded as fast forward/rewind buttons.
For fast forward, press the high-speed tape transport button that corresponds to the direction that is shown by the direction indicator. When the end of the tape is reached, playback will automatically begin from the opposite side of the tape (Autoreverse).
For rewind, press the button that is opposite that of the direction shown by the direction indicator. When the end of the tape is reached, playback will automatically begin from the beginning of the same side of the tape (Auto-replay).
Fast forward and rewind can be terminated by pressing the respective opposite high-speed tape transport button.

• **Direction Change Button**
This button is used to switch from one side of the tape to the other (from Side A to Side B or vice versa).

Music Search

• Returning to the beginning of selection A

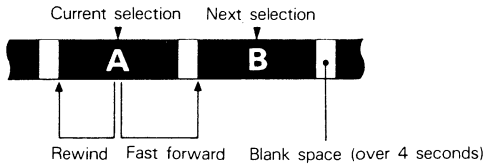
Press the music search button and then the high-speed tape transport button for the direction opposite that shown by the direction indicator. Playback will automatically start from the beginning of selection A.

• Moving from selection A to selection B

Press the music search button and then the high-speed tape transport button that corresponds to the direction shown by the direction indicator. Playback will automatically start from the beginning of selection B.

To enable regular fast forward/rewind operations, press the music search button again to turn the function OFF. The following errors will cause the music search function to operate improperly, even though the unit is not malfunctioning.

- Unrecorded "blank" portions between selections is less than 4 seconds ➡ the blank portion cannot be detected by the unit.
- Pauses in recorded conversations are longer than 4 seconds ➡ the unit reads these as blanks between selections.
- Portions are recorded at very low volume for more than 4 seconds ➡ the unit reads these as blanks between selections.



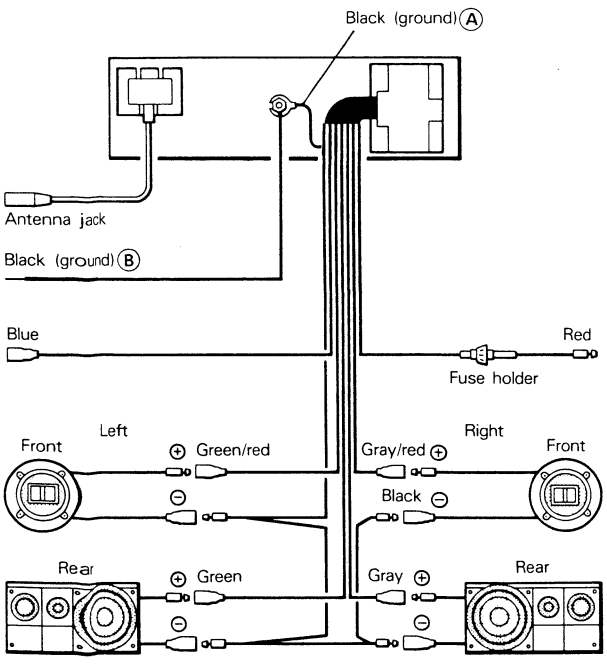
3. CONNECTION

Note:

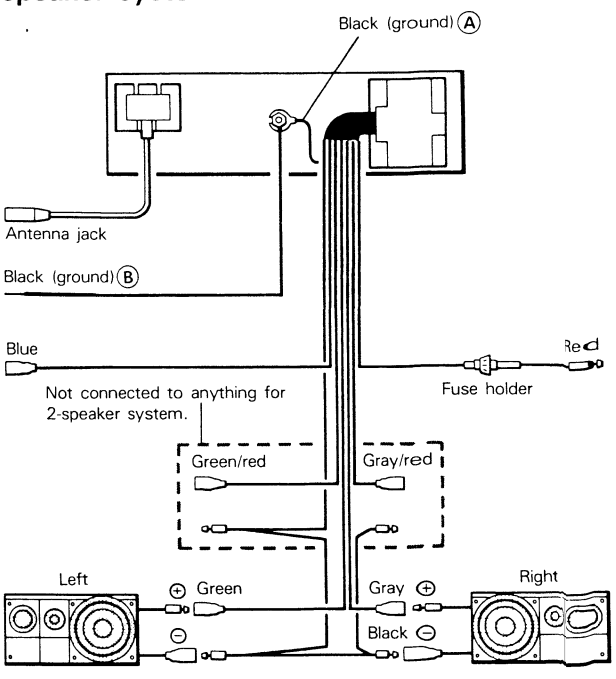
- To avoid shorts in the electrical system, be sure to disconnect the battery ⊖ cable before beginning installation.
- Replace fuses only with the types stipulated on the fuse holder.
- Be sure to properly connect the color coded leads. Failure to do so can cause malfunctions.
- Cover unused terminals with tape to prevent electrical shorts.

Black (ground) Ⓐ	To car stereo's chassis.
Black (ground) Ⓑ	To vehicle (metal) body.
Blue	System control/Auto-antenna relay control terminal (Max. 300 mA 12 V DC).
Red	To electric terminal controlled by ignition switch (12 V DC) ON/OFF.

4-speaker system



2-speaker system



4. DISASSEMBLY

• **Case**

1. Insert and turn a flat screwdriver to remove case.
2. Raise case to remove.

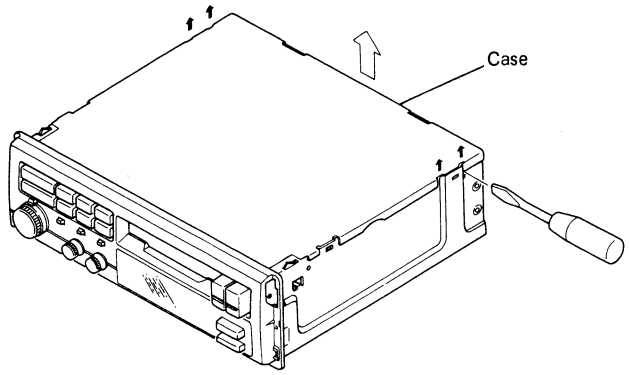


Fig. 1

• **Grille assembly**

1. Remove four knobs.
2. Press tabs at three locations indicated by arrows, and pull out grille assembly.

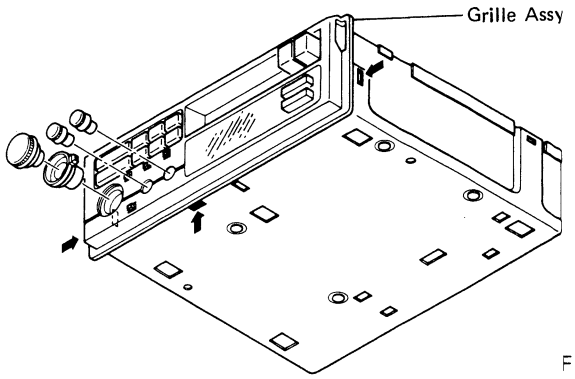


Fig. 2

• **Keyboard unit**

1. Disconnect connector.
2. Remove four screws and then remove keyboard unit.

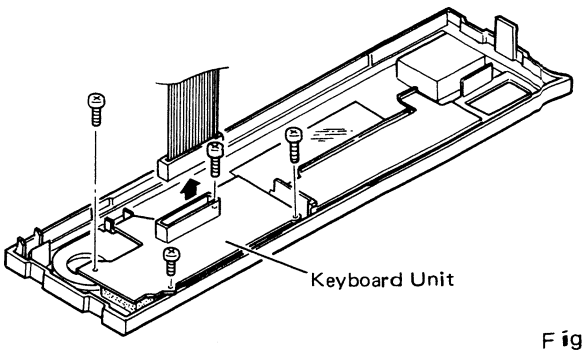


Fig. 3

• **Cassette mechanism assembly**

1. Disconnect two connectors.
2. Remove four screws, and then remove cassette mechanism assembly.

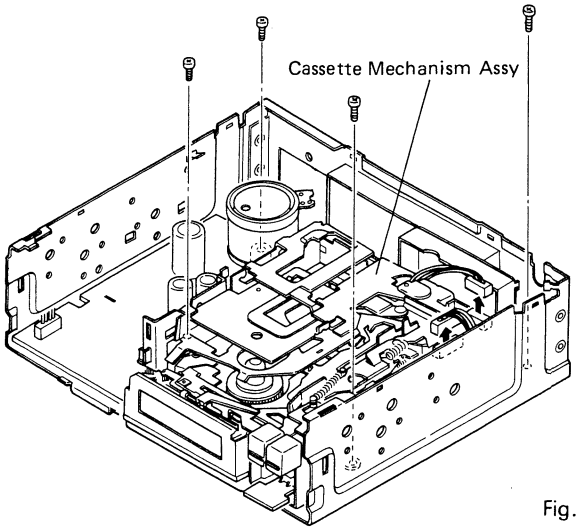


Fig. 4

• **Chassis unit**

1. Remove six screws.
2. Unbend tabs at five locations indicated by arrows until straight. (Fig. 6)

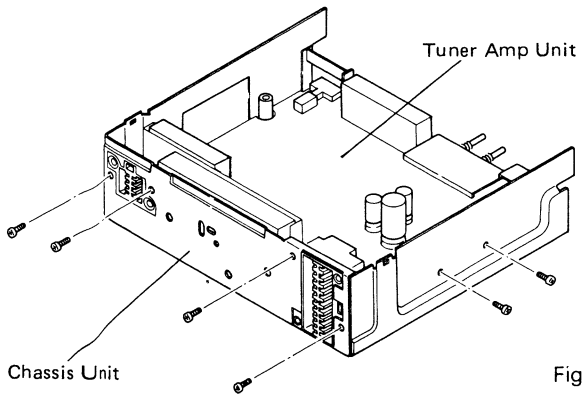


Fig. 5

3. Raise up on tuner amp unit to remove it from chassis unit. At this time, disconnect antenna, power supply, and output connector from chassis unit.

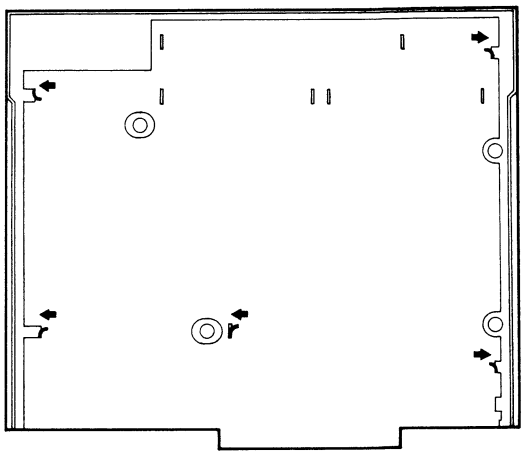


Fig. 6

• **FM unit/AM unit**

1. Unbend tabs on back of each unit circuit board until straight, and pull out units as shown in illustration.

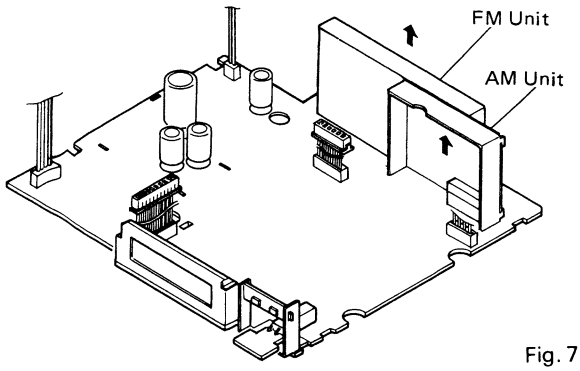


Fig. 7

NOTE:

FM unit and AM unit can be removed before chassis unit. Holes are provided on back of chassis unit to allow unbending of tabs for each unit. Also, each unit can be removed independently for operational checks.

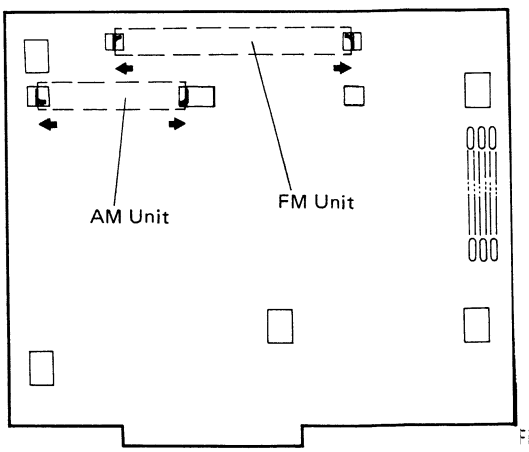


Fig. 8

5. CIRCUIT DESCRIPTION

• Block Diagram

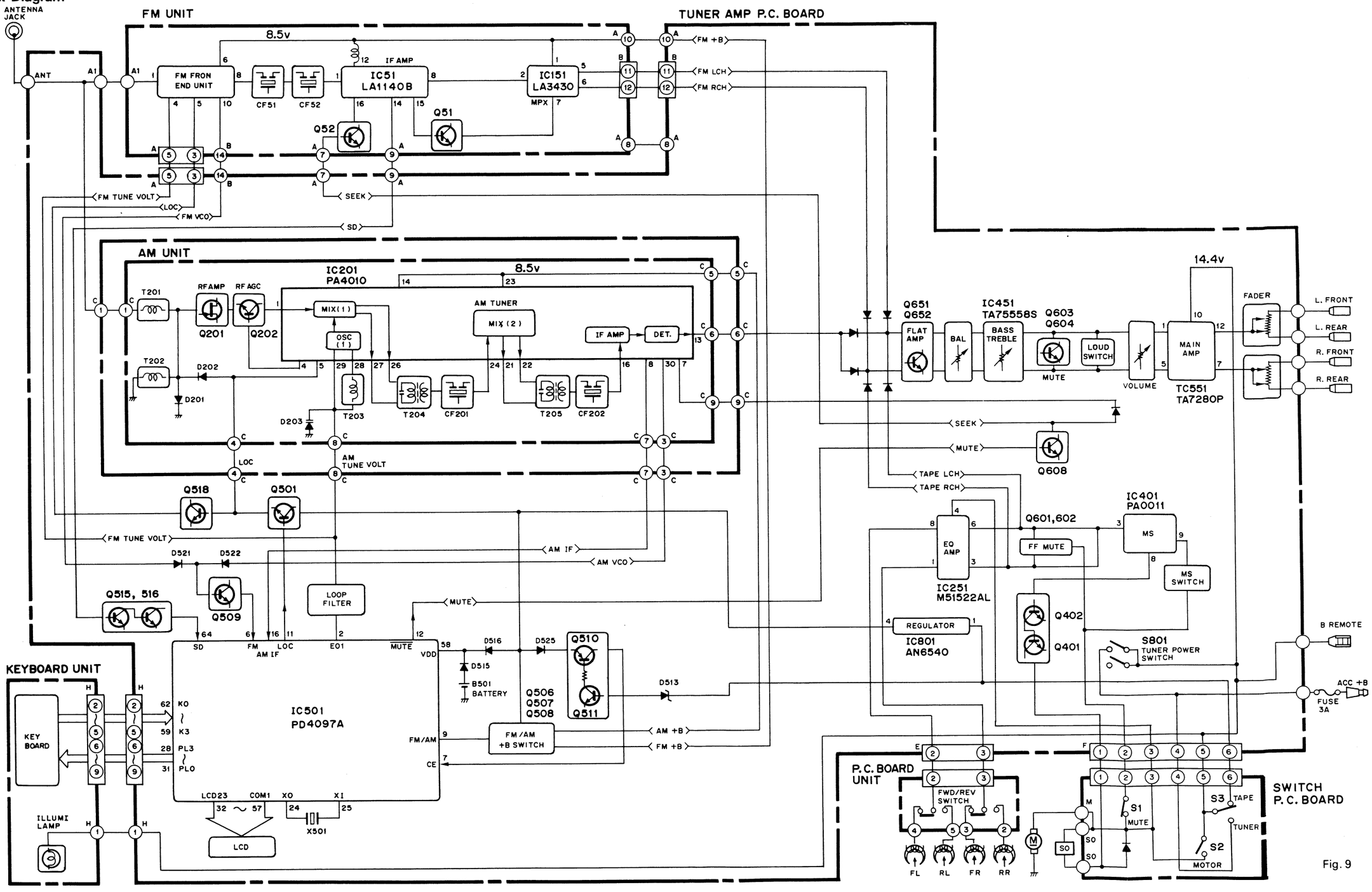


Fig. 9

• **Level Diagram**

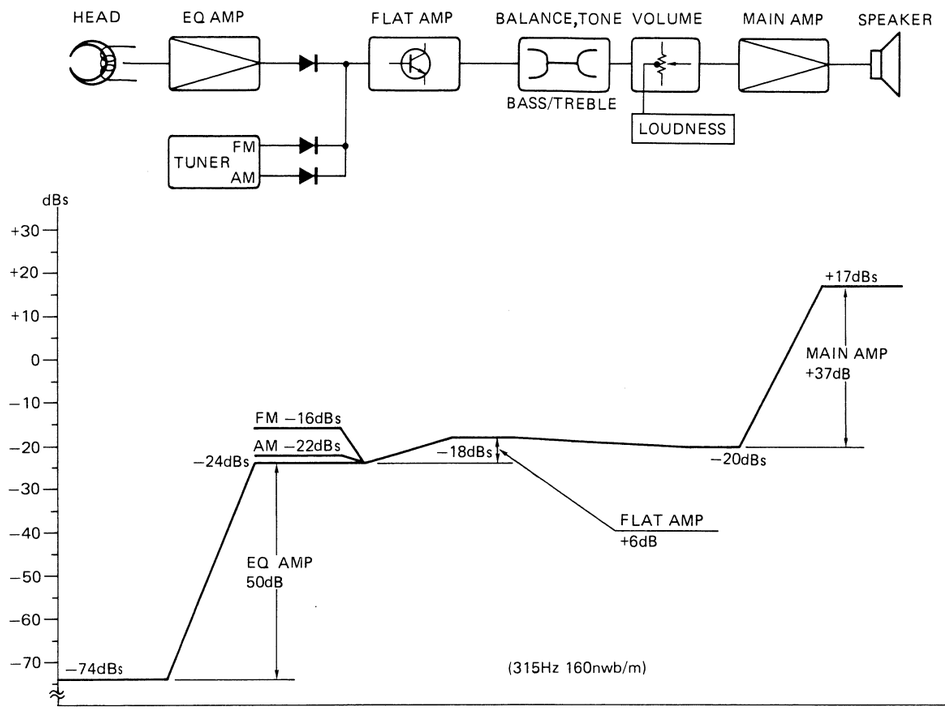
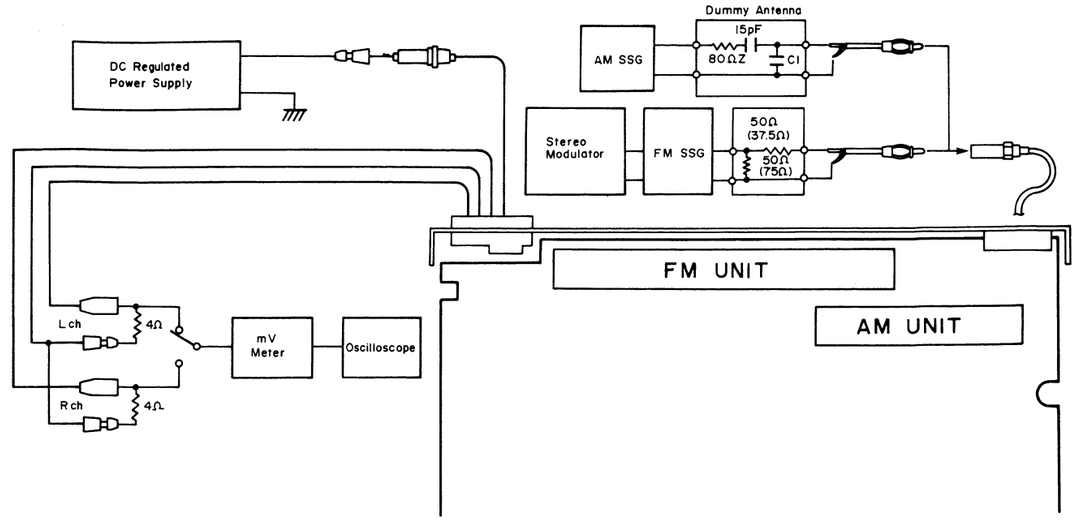


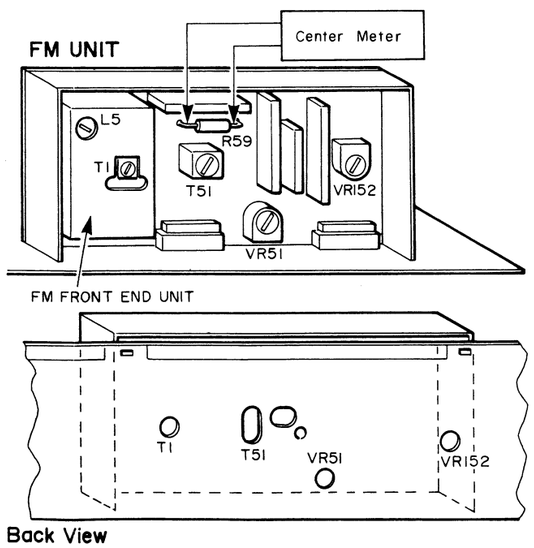
Fig. 10

6. ADJUSTMENT

NOTICE:
Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.
Z: Output impedance of SSG.

• **Connection Diagram**





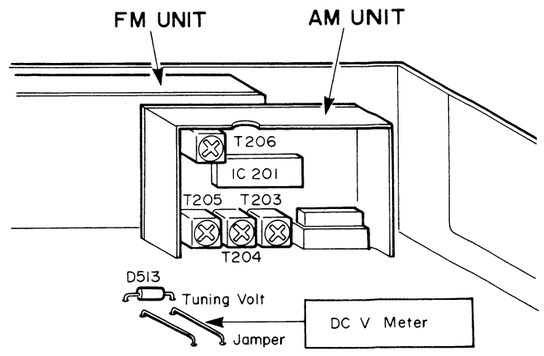


Fig. 11

6.1 AM ADJUSTMENT

	No.	AM SSG (400 Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dB)			
Tuning Volt	1			1,620	T203	DC V Meter: Less than 6 V
	2			530	T203	DC V Meter: More than 2 V
IF	1	1,000	20—25	1,000	T204,T205,T206	mV Meter: Maximum

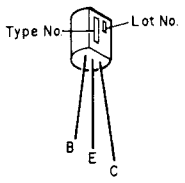
6.2 FM ADJUSTMENT

*Stereo MOD.: 1 kHz, L+R=90%, Pilot=10%

	No.	FM SSG		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (MHz)	Level (dB)			
IF	1	98.1 (400 Hz, 30%)	60	98.1	T51	Center Meter: 0 (MONO SW: MONO)
Front End	1			107.9	L5	DC V Meter: 6.5±0.2 V
	2			87.9	—	DC V Meter: More than 1.6 V
	3	98.1 (400 Hz, 100%)	5—10	98.1	T1	mV Meter: Maximum
ARC	1	98.1*		98.1	VR152	mV Meter: Separation 5 dB
SEEK	1	98.1 (400 Hz, 100%)	25		VR51	Make SEEK stop (LOC.S SW: DX)
	2	98.1 (400 Hz, 100%)	19		———	Verify that SEEK doesn't stop.
	3	98.1 (400 Hz, 100%)	44		———	Verify that SEEK doesn't stop. (LOC.S SW: LOC.S)
	4	98.1 (400 Hz, 100%)	55±10		———	Verify that SEEK stops.
	5	Confirm each stop sensitivity falls within standard values after above adjustment.				

• ICs and Transistors

2SC2498
2SC2026



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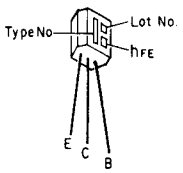

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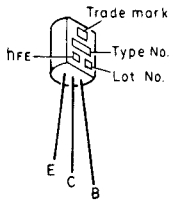

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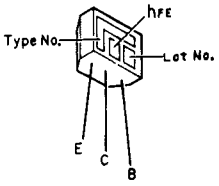
2SD1468S



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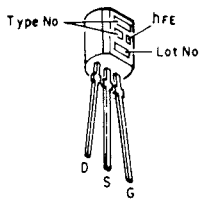

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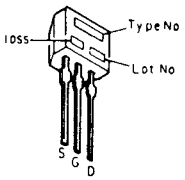

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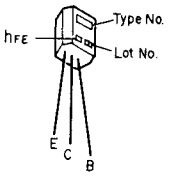
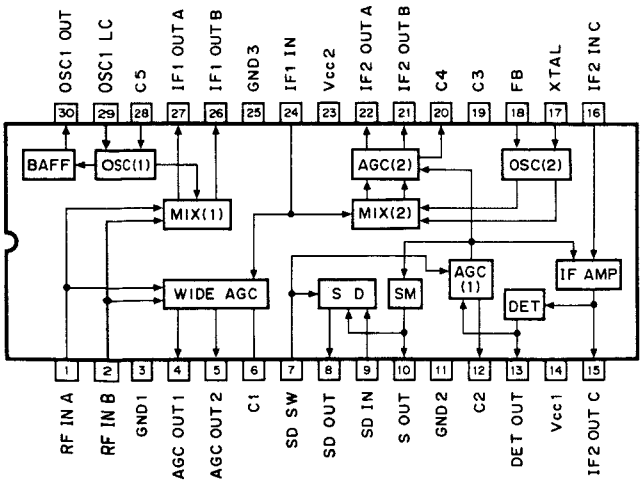
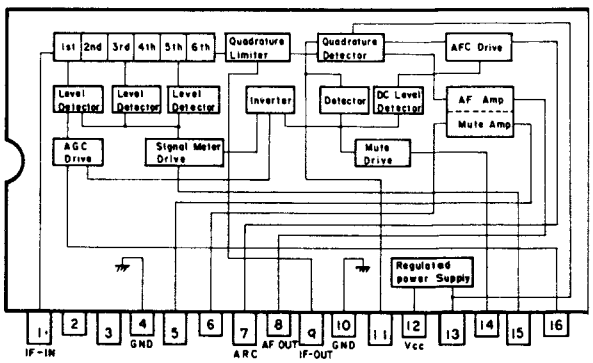
2SC1740S
2SA1150
2SA1048
2SC3113



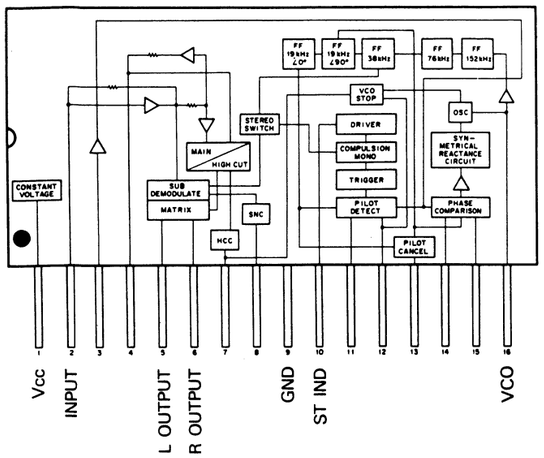
PA4010



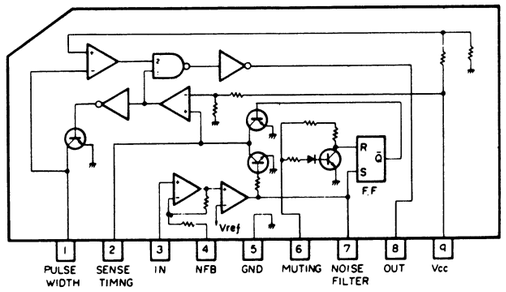
LA1140B



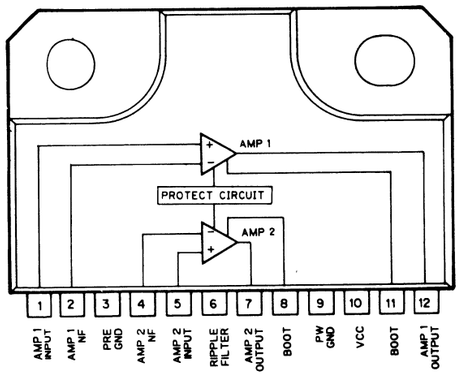
LA3430P



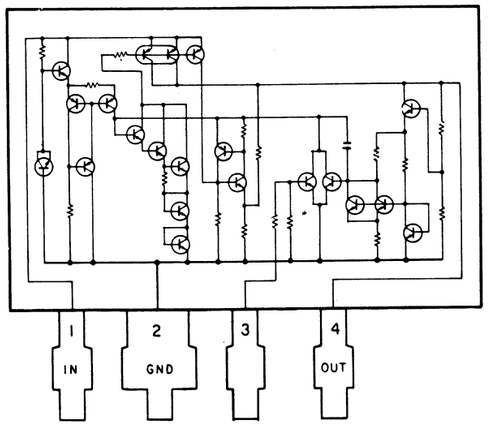
PA0011



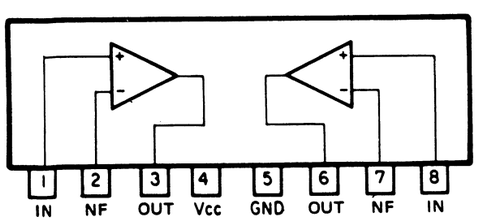
TA7280P



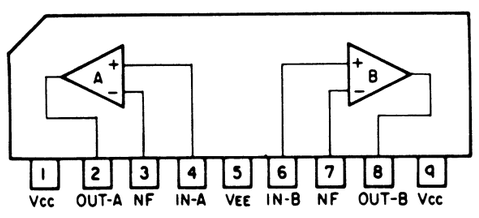
AN6540



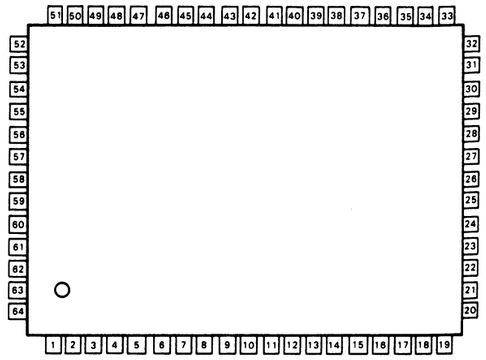
M51522L



TA75558S



*PD4097A



IC's marked by * are MOS type.
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

• Pin Functions (PD4097A)

Pin No.	Pin Name	I/O	Function and Operation
1	NC	—	No. connected to internal chips.
2 3	E01 E02	Output CMOS 3 state	Pll error output. H level output by these terminals when division of local oscillator frequency (VCO output) is higher than reference frequency. L level output when lower, This output is applied to a varactor diode, via an external low pass filter. E01 and E02 output identical waveforms.
4 8	GND GND	— —	GND terminal
5	AM	Input	Inputs 0.6~15 MHz (0.3 Vp-p MIN) local oscillator reference frequency (VCO output). This terminal is active when direct division system is selected.
6	FM	Input	Inputs 15~150 MHz (0.5 Vp-p MIN) local oscillator reference frequency (VCO output). This terminal is active when swallow counter method is selected.
7	CE	Input	Device signal input. H level during normal device operation, L level when deivce is not being used. PLL is in disable status while this terminal is L level. For models without clocks, internal clock and CPU operation is halted while this terminal is L level, and memory is maintained by low demand current (10 μA MAX). Change of CE terminal from L to H results in device reset and the program to start from address O.
9 10	FM/AM $\overline{LW}$	Output CMOS Pushpull	Power supply switching output terminal fro tuner. Output as illustrated in following table according to outputs of two terminals. BAND / PIN: FM: FM/AM H, $\overline{LW}$ H; MW: FM/AM L, $\overline{LW}$ H; LW: FM/AM L, $\overline{LW}$ L
11	LOC	Output CMOS Pushpull	Halt sensitivity switching terminal controlled by LOC key. H level output only for auto tuning in LOC mode.
12	$\overline{MUTE}$	Output CMOS Pushpull	Mute output. Output for elimination of shock noise when PLL lock is released. Active when low.
13	SDK	Output CMOS Pushpull	Output terminal controlled by SDK key. H level output in SDK mode.
14	DK OUT	Output CMOS Pushpull	Controlled by $\overline{DK}$ IN (terminal #17) input signal. H level output when DK IN input signal is detected as 125 Hz while $\overline{SK}$ (terminal #18) input is L level. Since DK IN measurement operation is only performed in SDK mode, terminal is always L in SDK mode except under above noted conditions.
15	$\overline{AL}$	Output CMOS Pushpull	Controlled by $\overline{SK}$ (terminal #18) input signal. $\overline{SK}$ continues in SDK mode, and L level is output when $\overline{SK}$ continues for 30 seconds. Alarm tone is output after $\overline{AL}$ terminal output L level.
16	AM IF	Input	MW, LW band center frequency input terminal. Used for broadcast detection in MW, LW band auto tuning.

Pin No.	Pin
17	
18	
19	
20	
21	
22 23	
24 25	
26 58	
27	
28 29 30 31	
32 ~ 55	
56 57	
59 ~ 62	
63	
64	

se they are very
tic induction.

Pin No.	Pin Name	I/O	Function and Operation
17	DK IN	Input	Inputs message recognition signal (DK) sent during traffic information broadcasts only. Since the DK signal is sent by amplitude modulation of a 57 kHz subcarrier wave by 125 Hz, it counts the input signals in accordance with the program. A DX signal is judged as being preset when 125 Hz is detected twice consecutively. DK signal is judged as not being preset when 125 Hz is not detected 4 times consecutively. An interrupt operation is performed when a DK signal is judged as being present. This count is only performed in the SDK mode.
18	$\overline{SK}$	Input	Determines whether traffic information is being broadcast and inputs a broadcast detect signal (SK). Broadcast is detected when input signal is L level, and "SK" indicator is displayed. Besides being used as the SDK mode auto tuning stop signal, SK input controls the SK mode and SK alarm functions.
19	$\overline{ST}$	Input	Inputs stereo broadcast detection signal. Stereo is detected when input signal is L level, and "ST" indicator is displayed. Display is cleared when input signal is at H level. "ST" indicator is OFF during mute signal output.
20	NC	—	Not used.
21	MONO	Output CMOS Pushpull	Controlled by MONO key. L level for MONO, H level output for AUTO.
22 23	PB2 PB3	Output CMOS Pushpull	Key return signal source output terminal.
24 25	XO XI	Input CMOS	Quartz oscillator terminal connection terminal. 4.5 MHz quartz crystal used.
26 58	VDD VDD	— —	Device power supply terminal. 5V ± 10% voltage supplied.
27	PEE	Output CMOS Pushpull	Alarm output terminal. Alarm output when $\overline{SK}$ in SDK mode remains at H level continuously for more than 30 seconds.
28 29 30 31	PL3 PL2 PL1 PL0	Output CMOS Pushpull	Key return signal source output terminal.
32 ~ 55	LCD23 ~ LCD0	Output CMOS Pushpull	Segment signal output terminal to LCD. LCD display performed using COM0, COM1 matrices.
56 57	COM0 COM1	Output CMOS Pushpull	Common signal terminal to LCD. GND, 1/2VDD, VDD values (5 ms interval) output at 100 Hz cycle. Segments between these terminals and LCD0 ~ LCD23 with ± VDD potential difference are lit.
59 ~ 62	K3 ~ K0	Input	Key matrix input terminal.
63	TAPE	Input	Tape signal input terminal. Since this terminal is A/D (analog/digital) input, 2,461 V and above is the H level tape mode.
64	$\overline{SD}$	Input	Judges whether or not a broadcast is present during auto tuning. A broadcast is judged as being present when L level is input.

(VCO output)
varactor diode,

his terminal is

his terminal is

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(10 µA MAX).
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is detected as
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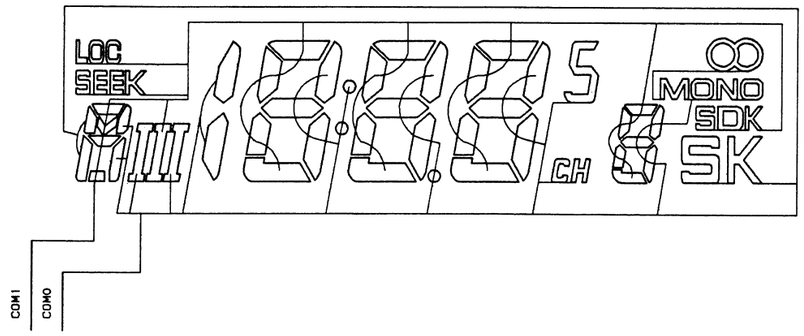
output when

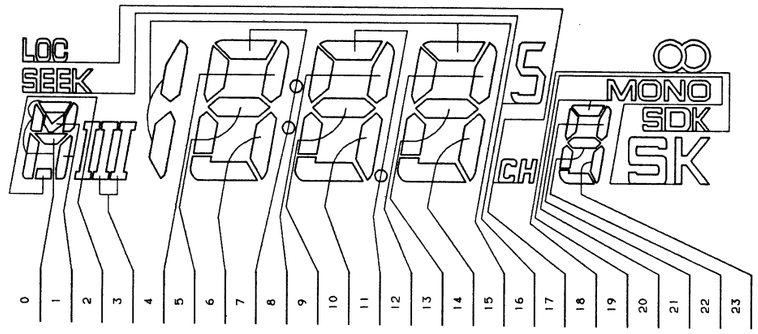
d auto tuning.

• LCD (CWW1039)

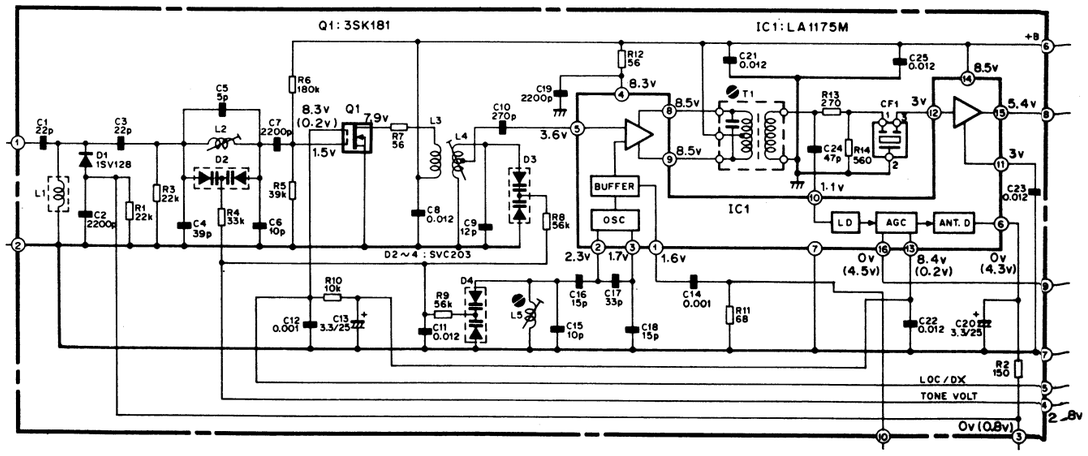
COMMON



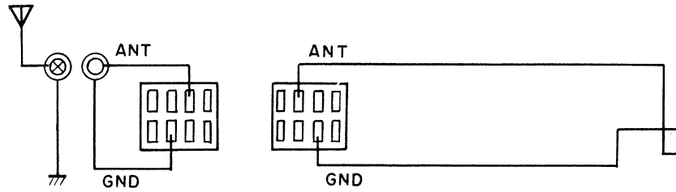
SEGMENT



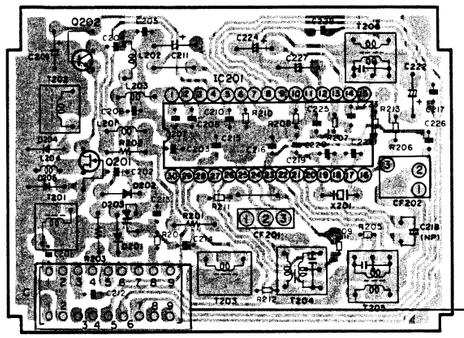
• FM Front End Unit (CWB1022)



7. CONNECTION DIAGRAM



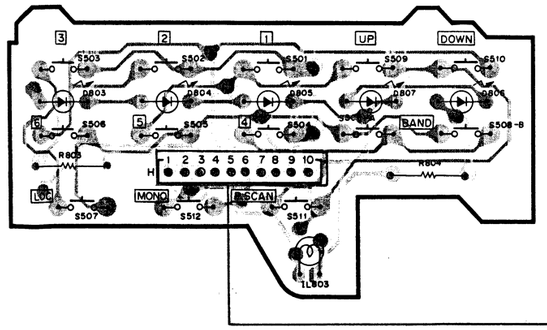
AM UNIT



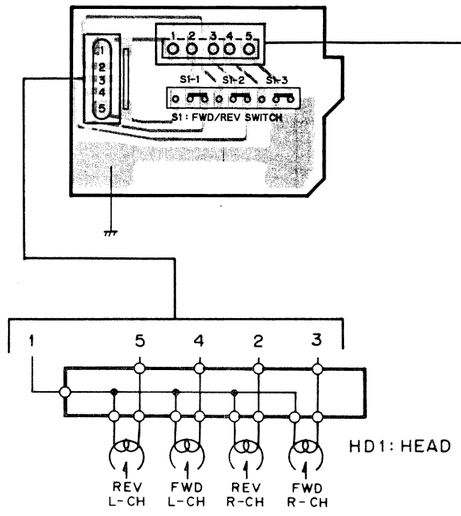
AM UNIT

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
IC201		3.3	3.4	0	4.7			6.9	4.7			0	2.3	2.3	8.5	3.6
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
	3.6	4.6	4.0	5.3	4.8	8.2	8.2	8.5	3.3	0	8.2	8.2		5.4	2.7	(V)

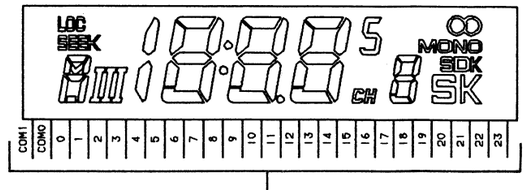
KEYBOARD UNIT



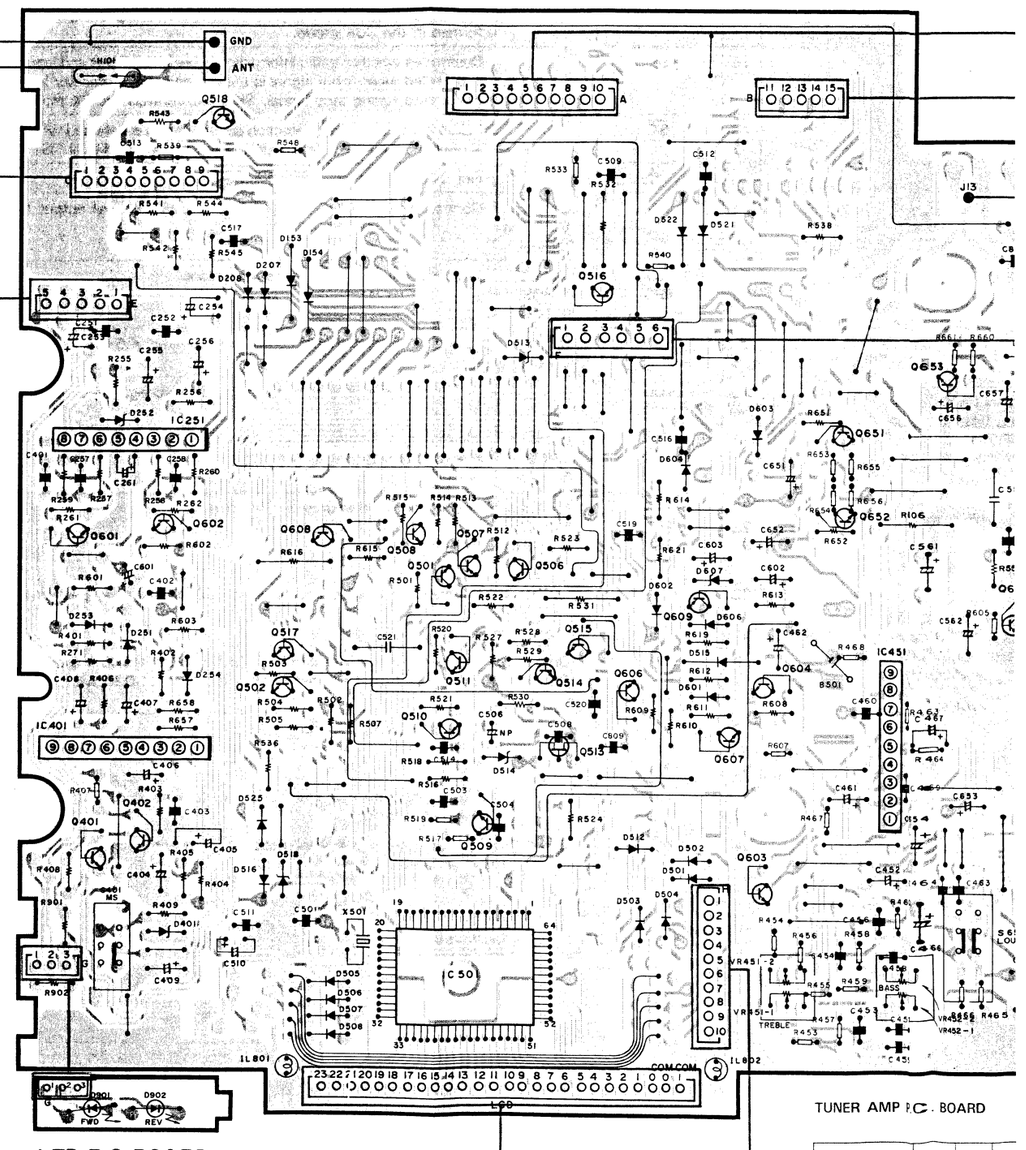
P.C. BOARD UNIT



LCD

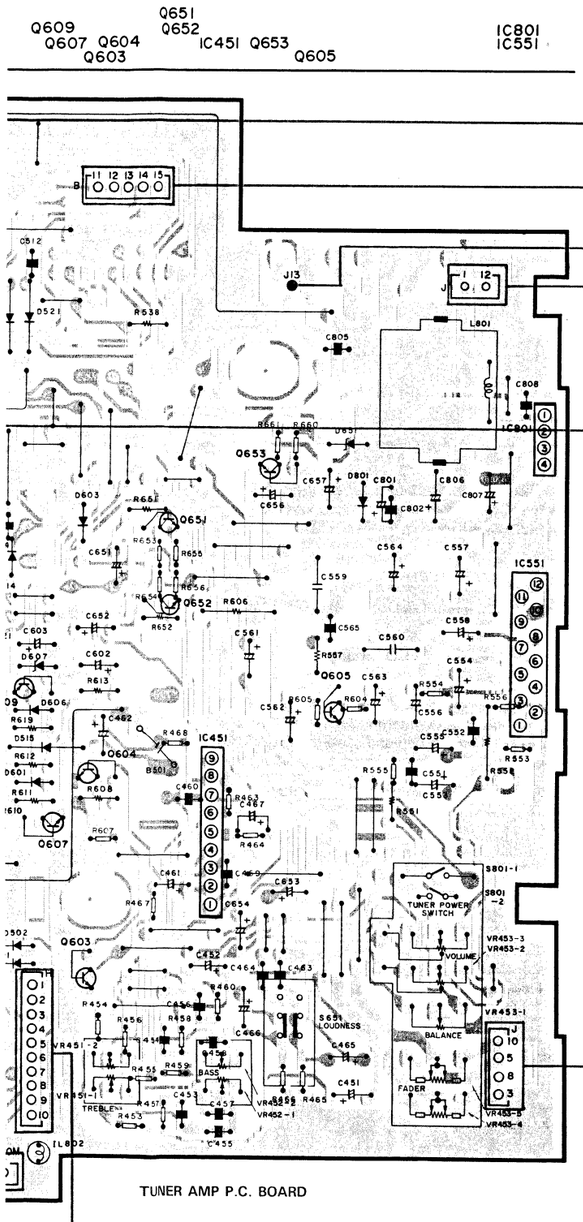


TUNER AMP P.C.BOARD



TUNER AMP P.C. BOARD

	1	2	3
IC251	1.1	0.6	2.
IC451	14.4	4.6	4.
IC551	1.4	1.4	0



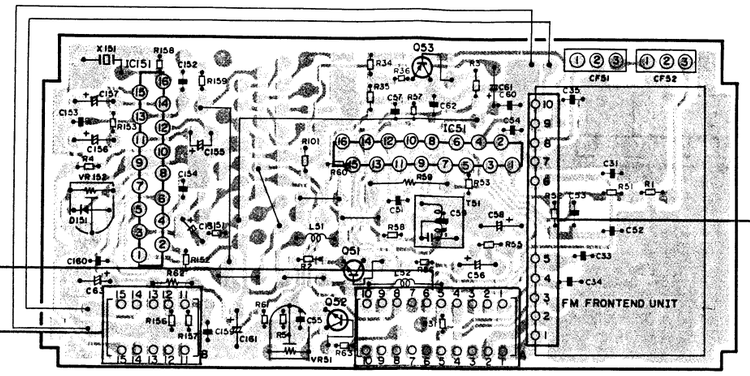
TUNER AMP P.C. BOARD

	1	2	3	4	5	6	7	8	9	10	11	12
IC251	1.1	0.6	2.8		0	2.8	0.6	1.1				
IC451	14.4	4.6	4.6	4.6	0	4.6	4.6	4.6				
IC551	1.4	1.4	0	1.4	1.4	7.0	7.3	13.6	0	14.4	13.6	7.3

(V)

FM UNIT

IC, Q	IC151	Q51 Q52	Q53 IC51
ADJ	VR152	VR51	T51



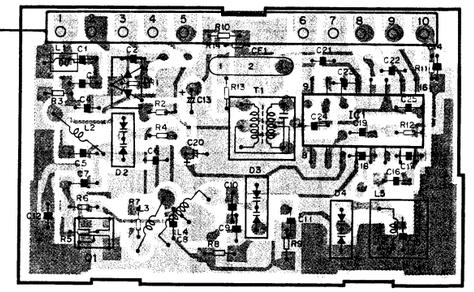
FM UNIT

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC51	2.6	2.6	2.6	0	2.0	0.8	5.0	4.9	4.9	0	4.9	8.4	4.9	3.5	0.2	4.1
IC151	8.4	3.3	3.5	2.7	3.7	3.7			0	8.3	2.7	2.7	0.9	2.7	2.7	3.5

(V)

FM FRONT END UNIT

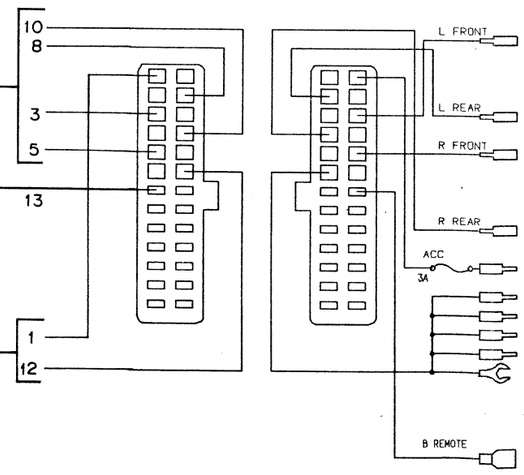
IC, Q	Q1	IC1
ADJ	T1	L5



FM FRONT END UNIT

	1	2	3	4	5	6	7	8
IC1	1.6	2.3	1.7	8.3	3.6	0 (4.3)	0	8.5
	9	10	11	12	13	14	15	16
	8.5	1.1	3.0	3.0	8.4 (0.2)	8.5	5.4	0 (4.5)

(V)



SWITCH P.C.BOARD

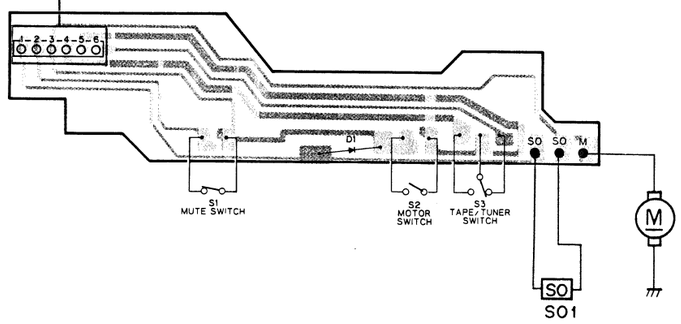
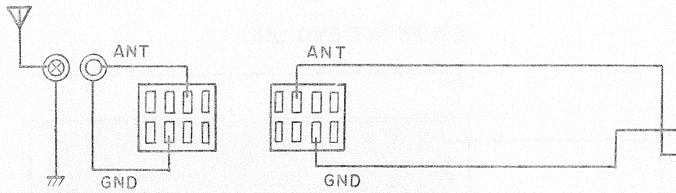
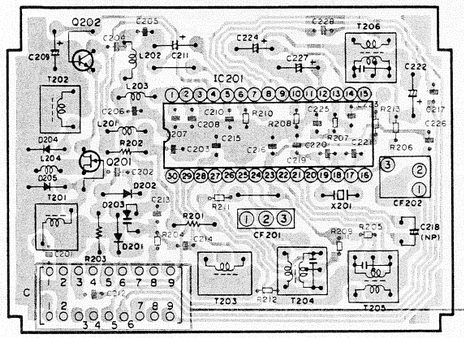


Fig. 12

7. CONNECTION DIAGRAM



AM UNIT

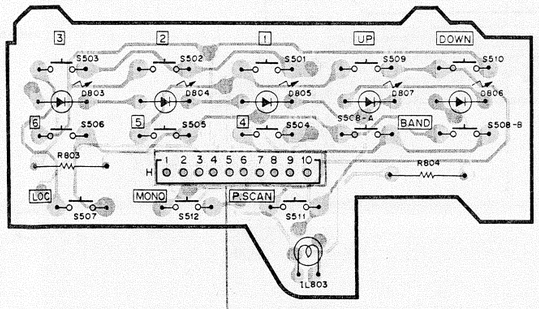


AM UNIT

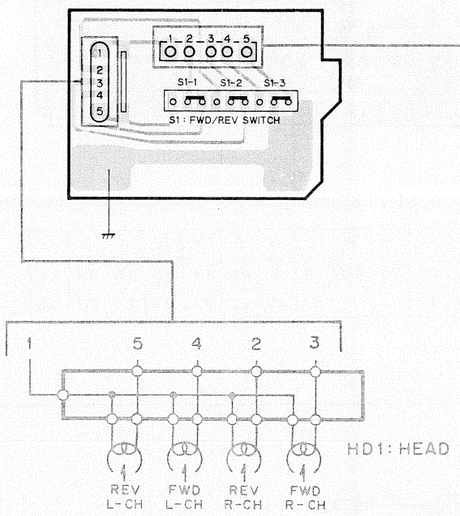
IC201	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	3.3	3.4	0	4.7			6.9	4.7			0	2.3	2.3	8.5	3.6
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	3.6	4.6	4.0	5.3	4.8	8.2	8.2	8.5	3.3	0	8.2	8.2		5.4	2.7

(V)

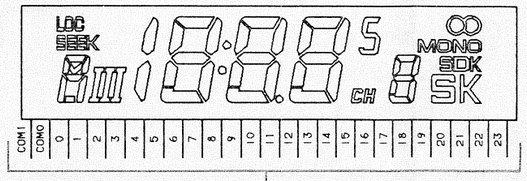
KEYBOARD UNIT



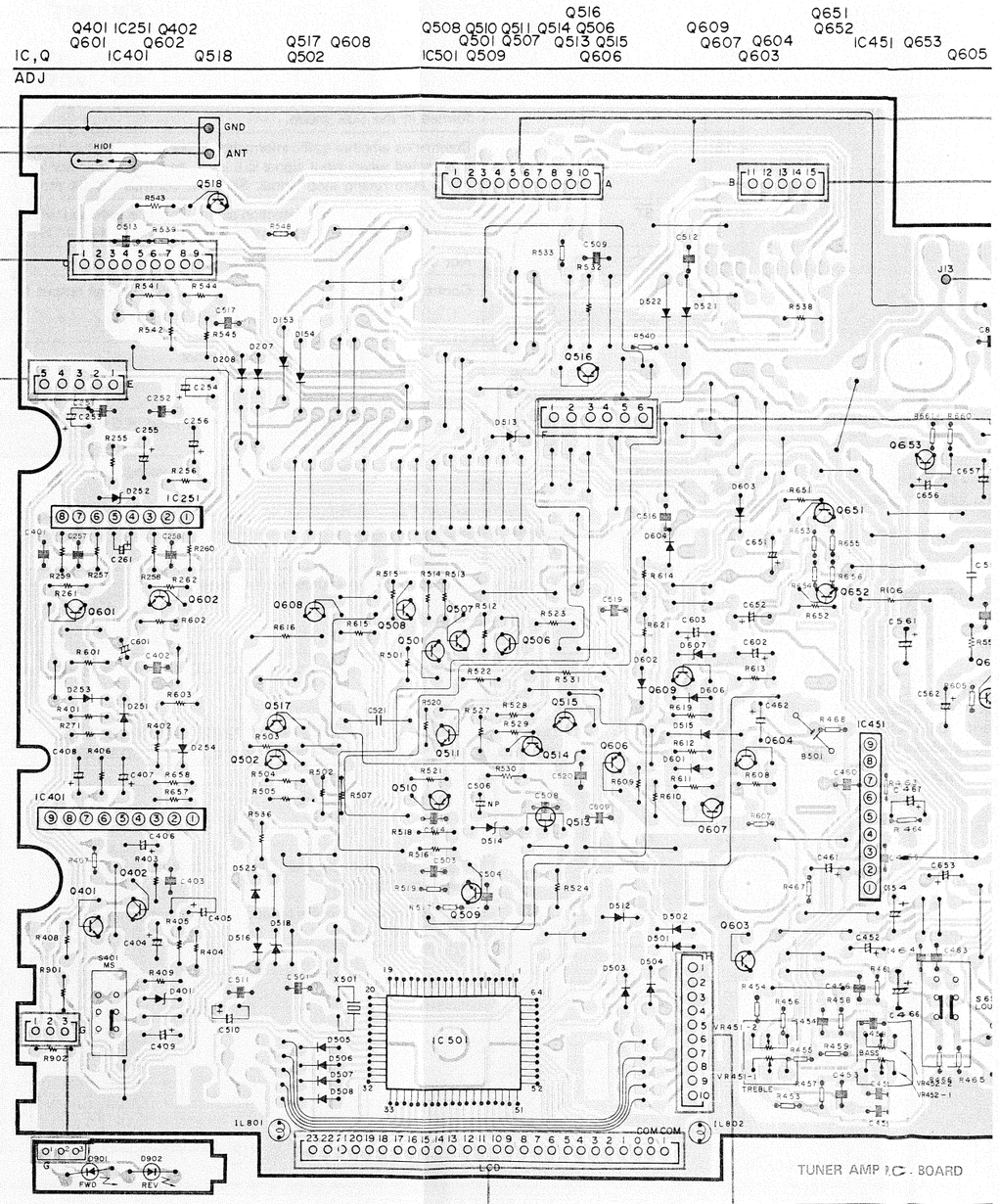
P.C. BOARD UNIT



LCD



TUNER AMP P.C.BOARD

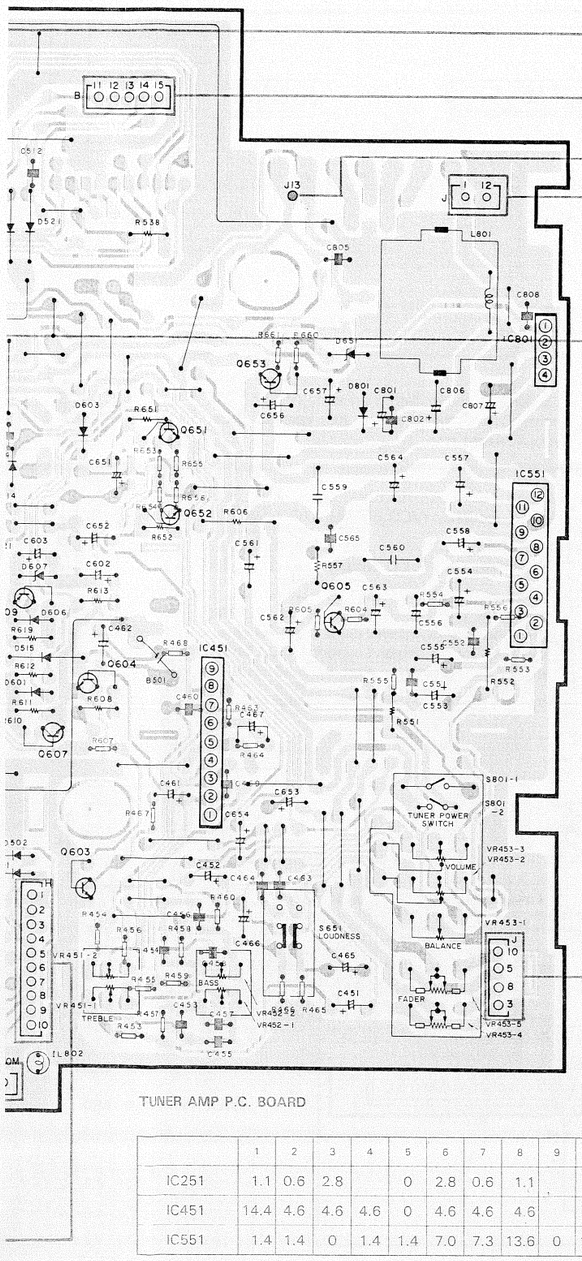


LED P.C.BOARD

TUNER AMP P.C. BOARD

	1	2	3
IC251	1.1	0.6	2.
IC451	14.4	4.6	4.
IC551	1.4	1.4	

Q609 Q651 Q652 Q607 Q604 Q603 IC451 Q653 Q605 IC801 IC551



TUNER AMP P.C. BOARD

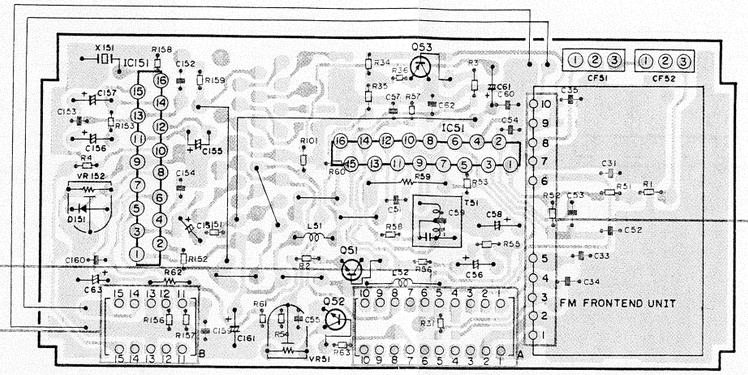
	1	2	3	4	5	6	7	8	9	10	11	12
IC251	1.1	0.6	2.8		0	2.8	0.6	1.1				
IC451	14.4	4.6	4.6	4.6	0	4.6	4.6	4.6				
IC551	1.4	1.4	0	1.4	1.4	7.0	7.3	13.6	0	14.4	13.6	7.3

(V)

FM UNIT

IC, Q IC151 Q51 Q52 Q53 IC51

ADJ VR152 VR51 T51



FM UNIT

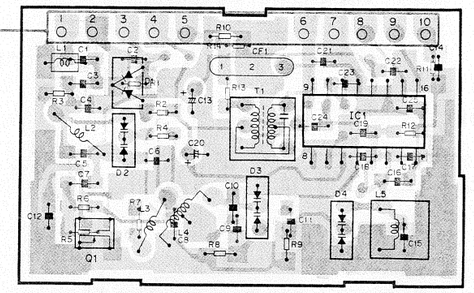
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC51	2.6	2.6	2.6	0	2.0	0.8	5.0	4.9	4.9	0	4.9	8.4	4.9	3.5	0.2	4.1
IC151	8.4	3.3	3.5	2.7	3.7	3.7			0	8.3	2.7	2.7	0.9	2.7	2.7	3.5

(V)

FM FRONT END UNIT

IC, Q Q1 IC1

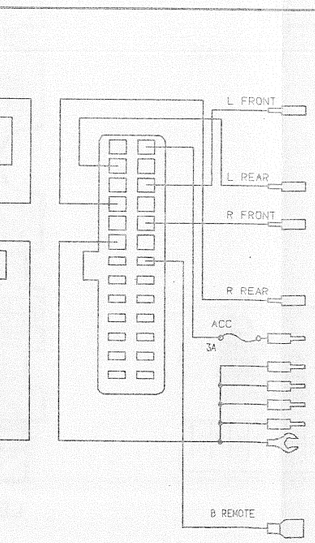
ADJ T1 L5



FM FRONT END UNIT

	1	2	3	4	5	6	7	8
IC1	1.6	2.3	1.7	8.3	3.6	0 (4.3)	0	8.5
	9	10	11	12	13	14	15	16
	8.5	1.1	3.0	3.0	8.4 (0.2)	8.5	5.4	0 (4.5)

(V)



SWITCH P.C.BOARD

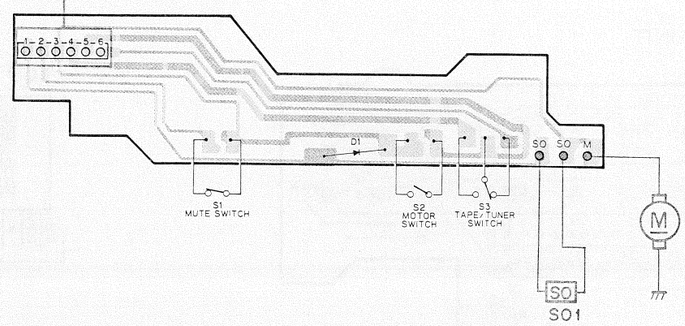


Fig. 12

8. SCHEMATIC CIRCUIT DIAGRAM

NOTE:

—⊣⊢— Indicates a chip capacitor.

—⁄\⁄\— Indicates a chip resistor.

FM UNIT		
Q51,52	2SC2458 (2SC1740S)	
Q53	2SA1048	
D151	US1040M (1SS133) (1SS176)	

TUNER AMP P.C.BOARD			
LCD	CWW1039		
B501	CEX1002	BATTERY 3V	
S401	CSG-186	MS SWITCH	ON-OFF
S651	CSG-207	LOUNDNESS SWITCH	ON-OFF
VR451,452	CLS-401	TREBLE,BASS	
VR453/S801	CCS1037	VOLUME,BALANCE,FADER/ TUNER POWER SWITCH	ON-OFF

NOTE: Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

FM UNIT		
VR51	CCP-254	
VR152	CCP-246	

KEYBOARD UNIT			
IL803	CEL1004	LAMP 14V 40mA	
S501-512	CSG-253	SWITCH	ON-OFF

SWITCH P.C.BOARD			
S1	ESN1001	MUTE SWITCH	ON(EJECT)-OFF(PLAY)
S2	ESN1001	MOTOR SWITCH	ON-OFF
S3	HSK-126	TAPE/TUNER SWITCH	TAPE-TUNER

P.C.BOARD UNIT			
S1	ESH1001	FWD/REV SWITCH	FWD-REV

MISCELLANEOUS PARTS LIST

HD1	EPB1001	
M	EXA1013	
SO1	XP1001	

AM UNIT	
Q201	2SK435
Q202	2SC2458 (2SC1740S)
D201,202,204,205	US1040M (1SS133) (1SS176)
D203	SVC203-AB

TUNER AMP P.C.BOARD	
Q401,402,501,502,508 511,514,515,517,518 601,602,605,607,608 651,652	2SC2458 (2SC1740S)
Q506,507	2SA1150
Q509	2SC2498 (2SC2026)
Q510,606,609	2SA1048 (2SA933S)
Q513	2SK330
Q516	2SC3113
Q603,604	2SD1012
Q653	2SC2634NC
D153,154,521	US1040 (1S2473) (1S1555)
D207,208,251,253,254 501~508,512,516,525 601~604,606	US1040M (1SS133) (1SS176)
D252,651	HZS7R5EB2 (MTZ7R5B)
D401	HZS9R1EB3 (MTZ9R1C)
D513	HZS8R2EB1
D514	HZS3R0EB2
D515	SD103A
D518	HZS6R6EB2 (MTZ5R6B)
D522	1SS135
D607	HZS10EB2 (MTZ10B)
D801	ERA15-02Y

SWITCH P.C.BOARD	
D1	FISR35-100A

KEYBOARD UNIT	
D803-807	LN41C

LED P.C.BOARD	
D901,902	LN41C

Fig. 13

KE-3050QR/UC

9. EXPLODED VIEW

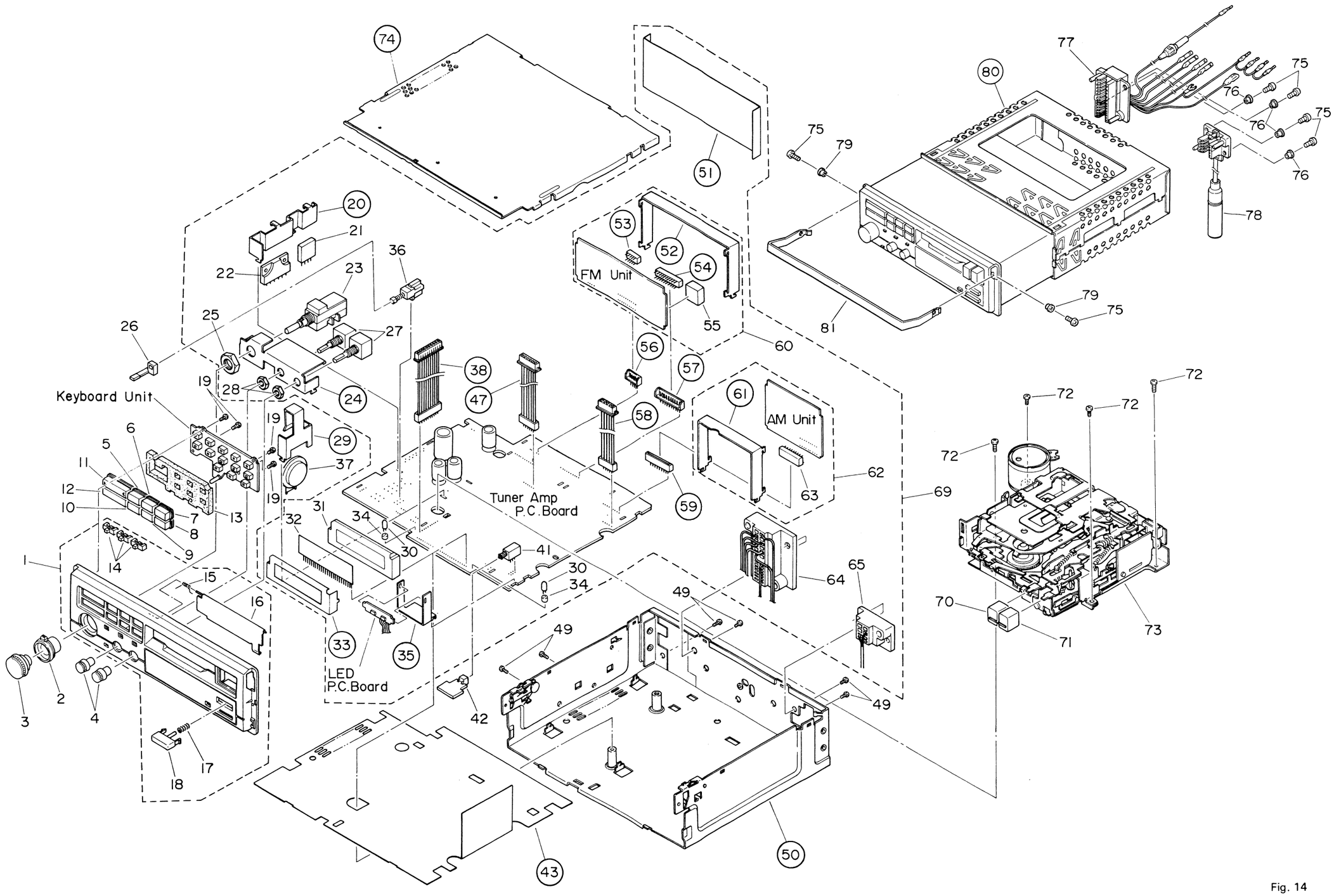


Fig. 14

• Parts List

NOTE:

- *For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.*
  ★ ★: GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

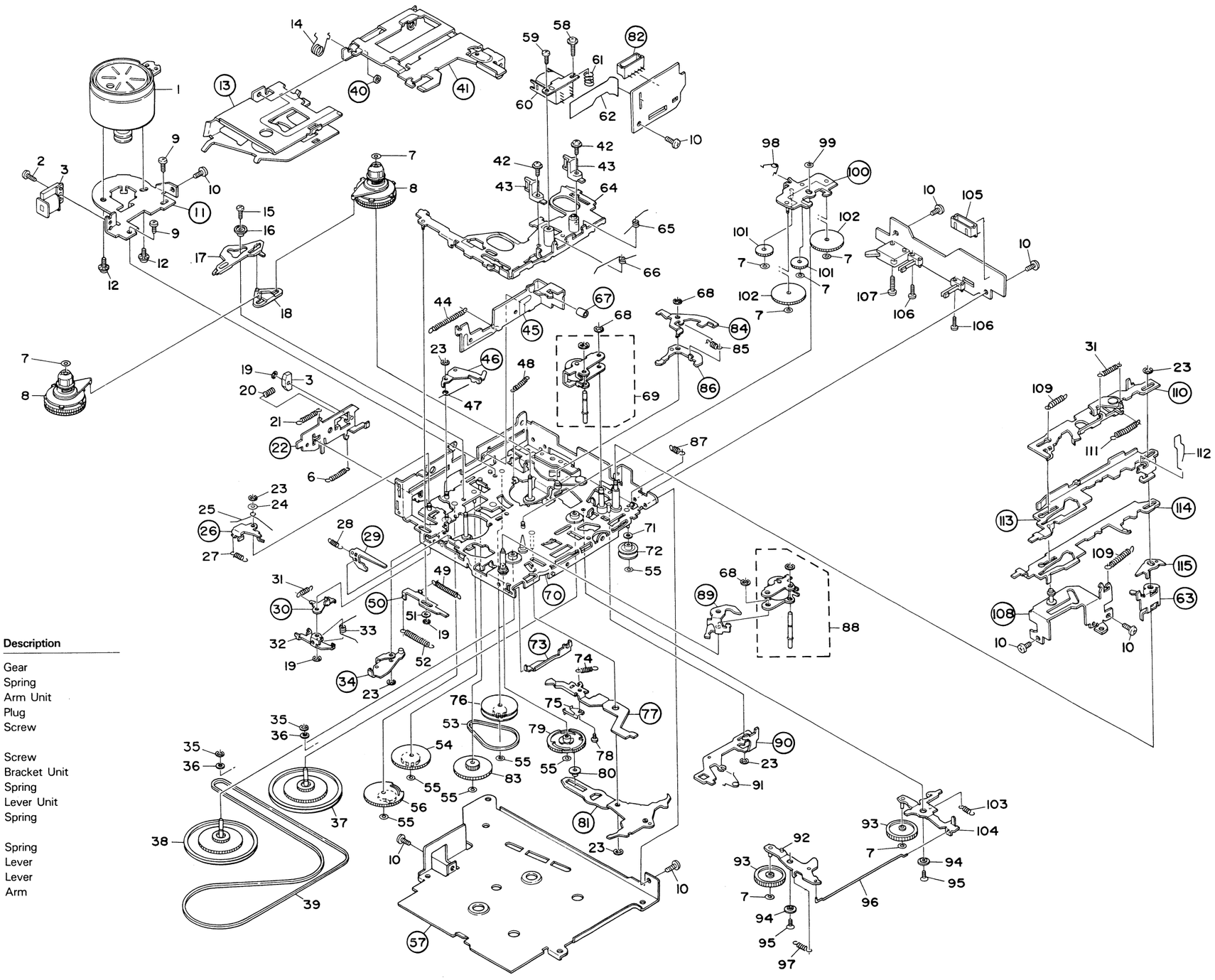
Mark	No.	Part No.	Description
	1.	CXA1573	Grille Assy
★	2.	CAA1051	Knob
★	3.	CAA1050	Knob
★	4.	CAA1052	Knob
★	5.	CAC1261	Button (1)
★	6.	CAC1262	Button (2)
★	7.	CAC1263	Button (3)
★	8.	CAC1266	Button (6)
★	9.	CAC1265	Button (5)
★	10.	CAC1264	Button (4)
★	11.	CAC1268	Button (SEEK)
★	12.	CAC1267	Button (BAND)
	13.	CNM1356	Cushion
★	14.	CAC1260	Button
	15.	CBH-875	Spring
	16.	CAT1052	Door
	17.	CBH-727	Spring
★	18.	CAC1322	Button (DIRECTION)
	19.	PTZ14P045FZK	Screw
	20.		Holder
★★	21.	AN6540	IC
★★	22.	TA7280P	IC
★×	23.	CCS1037	Volume
	24.		Holder
	25.	CBN-016	Nut
★	26.	CAC1269	Button (LOUDNESS)
★★	27.	CCS-401	Volume
	28.	CBA-066	Nut
	29.		Holder
★★	30.	CEL1004	Lamp
	31.	CNV1295	Lens
★	32.	CWW1039	LCD
	33.		Holder
	34.	CNY-030	Holder
	35.		Holder
★★	36.	CSG-207	Switch (LOUDNESS)
	37.	CEX1002	Battery
	38.		Connector
	39,40	VACANT	
★★	41.	CSG-186	Switch (MS)
★	42.	CAC1271	Button (MS)
	43.		Insulator
	44-46.	VACANT	
	47.		Connector
	48.	VACANT	
	49.	BMZ30P050FMC	Screw
	50.		Chassis Unit
	51.		Insulator
	52.		Holder
	53.		Connector
	54.		Connector
	55.	CWB1022	FM Front End Unit
	56.		Connector
	57.		Connector
	58.		Connector
	59.		Connector
◉	60.	CWE1064	FM Unit
	61.		Holder
◉	62.	CWA1001	AM Unit
	63.		Plug
	64.	CDE1328	Cord Assy
	65.	CDE1455	Cord Assy
	66-68.	VACANT	
◉	69.	CWM1216	Tuner Amp Unit
★	70.	CAC1327	Button
★	71.	CAC1325	Button
	72.	BMZ26P050FMC	Screw
◉	73.	EXK1020	Cassette Mechanism Assy
	74.		Case
	75.	PMZ30P080FZK	Screw
	76.	CLA1165	Collar
	77.	CDE1329	Cord Assy
	78.	CDE1456	Cord Assy
	79.	CLA1125	Collar
	80.		Box
	81.	CNC1379	Handle

10. CASSETTE MECHANISM ASSY EXPLODED VIEW

Mark	No.	Part No.	Description
★★	1.	EXA1013	Motor Assy
	2.	EBA1008	Screw
★	3.	EXP1001	Solenoid
	4,5.	VACANT	
	6.	EBH1011	Spring
	7.	CBF-166	Washer
★★	8.	EXA1012	Reel Unit
	9.	BMZ23P030FMC	Screw
	10.	BMZ23P040FMC	Screw
	11.		Bracket
	12.	PMS26P025FUC	Screw
	13.		Cassette Holder
	14.	EBH1019	Spring
	15.	EBA1002	Screw
	16.	ELA1019	Collar
	17.	ENV1022	Arm
	18.	ENV1021	Arm
	19.	YE12FUC	Washer
	20.	EBH1038	Spring
	21.	EBH1012	Spring
	22.		Lever Unit
	23.	YE15FUC	Washer
	24.	CBF-165	Washer
	25.	EBH1035	Spring
	26.		Arm
	27.	EBH1037	Spring
	28.	EBH1039	Spring
	29.		Arm
	30.		Arm
	31.	EBH1010	Spring
	32.		Arm
	33.	EBH1008	Spring
	34.		Arm Unit
	35.	CBG1001	Washer
	36.	HBF-179	Washer
	37.	ENV1019	Flywheel (N)
	38.	ENV1020	Flywheel (R)
★★	39.	CNT-091	Belt
	40.		Roller
	41.		Cassette Frame Unit
	42.	PMS20P040FMC	Screw
	43.	ENV1016	Tape Guide
	44.	EBH1020	Spring
	45.		Lever
	46.		Arm
	47.	EBH1040	Spring
	48.	EBH1041	Spring
	49.	EBH1021	Spring
	50.		Lever
	51.	EBE1001	Washer

Mark	No.	Part No.	Description
	52.	EBH1009	Spring
★★	53.	ENT1002	Belt
	54.	ENV1012	Gear
	55.	CBF-135	Washer
	56.	ENV1014	Gear
	57.		Cover
	58.	EBA1007	Screw
	59.	BMZ20P040FMC	Screw
★★	60.	EPB1001	Head
	61.	CBH-198	Spring
	62.	ENP1003	P.C.Board
	63.		Arm
	64.	EXA1004	Head Base Unit
	65.	EBH1004	Spring
	66.	EBH1003	Spring
	67.		Cushion
	68.	YE20FUC	Washer
	69.	EXA1002	Roller Unit
	70.		Chassis Unit
	71.	EBF1004	Washer
	72.	ENV1009	Pulley
	73.		Lever
	74.	EBH1025	Spring
	75.	EBL1001	Spring
	76.	ENV1010	Pulley
	77.		Arm
	78.	HBA-147	Screw
	79.	ENV1015	Gear
	80.	ELA1018	Collar
	81.		Arm
	82.		Plug
	83.	ENV1011	Gear
	84.		Arm
	85.	EBH1024	Spring
	86.		Ratchet
	87.	EBH1018	Spring
★★	88.	EXA1003	Roller Unit
	89.		Arm
	90.		Lever
	91.	EBH1013	Spring
	92.	EXA1006	Arm Unit
	93.	EXA1020	Gear Unit
	94.	ELA1032	Collar
	95.	HBA-212	Screw
	96.	EBH1007	Spring
	97.	EBH1006	Spring
	98.	EBH1014	Spring
	99.	CBF1001	Washer
	100.		Arm Unit
	101.	ENV1018	Gear

• Cassette Mechanism Assy



Mark	No.	Part No.	Description
	102.	ENV1017	Gear
	103.	EBH1022	Spring
	104.	EXA1005	Arm Unit
	105.		Plug
	106.	EBA1006	Screw
	107.	BMZ20P070FUC	Screw
	108.		Bracket Unit
	109.	EBH1016	Spring
	110.		Lever Unit
	111.	EBH1017	Spring
	112.	EBH1005	Spring
	113.		Lever
	114.		Lever
	115.		Arm

Fig. 15

11. ELECTRICAL PARTS LIST

NOTE:

When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56 × 10¹*	*561*	*RD1/4PS 5 6 1 J*
47kΩ	*47 × 10³*	*473*	*RD1/4PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 × 10¹*		*RN1/4SR 5 6 2 1 F*

- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★: GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*
  Chip Resistor
  RS1/8S□□□J, RS1/10S□□□J
  Chip Capacitor (except for CQS. . . . .)
  CKS. . . . ., CCS. . . . .

Tuner Amp P.C. Board

MISCELLANEOUS

Mark	Symbol & Description	Part No.
★★	IC251	M51522AL
★★	IC401	PA0011
★★	IC451	TA75558S
★★	IC501	PD4097A
★★	IC551	TA7280P
★★	IC801	AN6540
★★	Q401, 402, 501, 502, 508, 511, 514, 515, 517, 601, 602, 605, 607, 608, 651, 652	2SC2458 (2SC1740S)
★★	Q506, 507	2SA1150
★★	Q509	2SC2498 (2SC2026)
★★	Q510, 606, 609	2SA1048 (2SA933S)
★★	Q513	2SK330
★★	Q516	2SC3113
★★	Q603, 604	2SD1012 (2SD1468S)
★★	Q653	2SC2634NC
★	D153, 154, 521	US1040 (1S2473) (1S1555)
★	D207, 208, 251, 253, 254, 501 – 508, 512, 516, 525, 601 – 604, 606	US1040M (1SS133) (1SS176)
★	D252, 651	HZS7R5EB2 (MTZ7R5B)
★	D401	HZS9R1EB3 (MTZ9R1C)
★	D513	HZS8R2EB1 (MTZ8R2A)
★	D514	HZS3R0EB2
★	D515	SD103A
★	D518	HZS5R6EB2 (MTZ5R6B)
★	D522	1SS135
★	D607	HZS10EB2 (MTZ10B)
★	D801	ERA15-02Y
	L801 Choke Coil	CTF-002
	L801, 802 Lamp, 14 V 40 mA	CEL1004
	H101 Capacitor with Discharge Gap	CCX-006
	X501 Crystal Oscillator	CSS-046
	LCD	CWW1039
	B501 Battery, 3 V	CEX1002
★★	S401 Switch (MS)	CSG-186
★★	S651 Switch (Loudness)	CSG-207
★★	VR451, 452 Volume, 20 kΩ(B) × 2 (Treble, Bass)	CCS-401
★★	VR453/S801 Volume/Switch	CCS1037
	Volume, 20 kΩ(B) × 2, 50 kΩ(W), 200 Ω × 2 (Volume, Balance, Fader/Tuner Power Switch)	

RESISTORS

Mark	Symbol & Description	Part No.
	R407, 453 – 460, 463 – 468, 517, 519, 533, 539, 540, 548, 553 – 556, 604, 605, 607, 653 – 656, 660, 661	RS1/8S□□□J
	R531, 532, 552, 606, 616	RD1/4PM□□□J
	Other Resistors	RD1/4PS□□□JL

CAPACITORS

Mark	Symbol & Description	Part No.
	C251, 252	CKSYB471K50
	C253, 254	CEANL4R7M35LL
	C255, 256, 409, 510, 603, 656	CEA470M16LS
	C257, 258, 401, 402, 508, 516	CKSYB103K50
	C261	CEA221M10L2
	C403	CKSYB392K50
	C404, 406	CEA010M50LS2
	C405	CSZA1R5M25
	C407	CEA220M16LS
	C408, 651, 652	CEA4R7M35LS
	C451, 452, 461, 467, 653, 654	CEA100M16L2
	C453 – 456	CKSYB182K50
	C457, 458	CKSYB333K25
	C459, 460	CCSCH330J50
	C462, 602	CEA100M16LS2
	C463, 464	CKSYB272K50
	C465, 466	CEAR33M50L2
	C501, 502	CCSCH090D50
	C503, 504	CCSCH101J50
	C506 4.7 µF/16 V	CCH1005
	C509, 511, 519, 802, 805, 808, 809	CKSYF473Z50
	C512, 513	CKSYB223K50
	C514	CKSYB561K50
	C520	CKSYB102K50
	C521	CKPYY103M16L
	C551, 552	CCSSL331J50
	C553, 554	CEA010M50L2
	C555, 556, 563, 657, 806	CEA470M16L2
	C557, 558	CEA101M10L2
	C559, 560	CQMA224K50L
	C561, 562	CEA102M10L2
	C564	CEA222M16L2
	C565	CKSYF154Z25
	C601	CEA100M16LS
	C801	CEA100M25L2
	C807	CEA010M50L2

FM Unit

MISCELLANEOUS

Mark	Symbol & Description		Part No.
★★	IC51		LA1140B
★★	IC151		LA3430P
★★	Q51, 52		2SC2458 (2SC1740S)
★★	Q53		2SA1048
★	D151		US1040M (1SS133) (1SS176)
	L51	Inductor	LAU150K
	L52	Ferri-Inductor	CTF-156
	T51	Coil	CTC1008
	CF51, 52	Ceramic Filter	CTF-182
	X151	Ceramic Oscillator	CSS1019
	VR51	Semi-fixed, 330 kΩ(B)	CCP-254
	VR152	Semi-fixed, 15 kΩ(B)	CCP-246
	FM Front End Unit		CWB1022

RESISTORS

Mark	Symbol & Description	Part No.
	R59	RD1/4PM□□□J
	R62	RD1/4PS□□□JL
	R1 – 4, 35, 51 – 53, 55, 60, 101, 153, 159	RS1/8S□□□J
	Other Resistors	RS1/10S□□□J

CAPACITORS

Mark	Symbol & Description	Part No.
	C31, 52	CKSYB223K50
	C33	CKSYB102K50
	C34	CKSYB222K50
	C35	CKSYB103K50
	C51, 54, 59	CKSQYB223K50
	C53	CKSYB223K50
	C55, 62	CCSQCH330J50
	C56, 63	CEAR47M50LS2
	C57	CKSQYB103K50
	C58, 156	CEA010M50LS2
	C60	CCSQSL101J50
	C61	CEA220M16LS
	C151	CEAR47M50LS
	C152	CKSYB332K50
	C153	CKSQYB223K50
	C154	CKSQYB153K25
	C155	CEA3R3M50LS
	C157	CSZAR22M35
	C159, 160	CKSYB473K25
	C161	CEA470M16LS

AM Unit

MISCELLANEOUS

Mark	Symbol & Description		Part No.
★★	IC201		PA4010
★★	Q201		2SK435
★★	Q202		2SC2458
			(2SC1740S)
★	D201, 202, 204, 205		US1040M
			(1SS133)
			(1SS176)
★	D203		SVC203-AB
	L201	Ferri-Inductor	CTF1026
	L202	Ferri-Inductor	LAU220K
	L203	Ferri-Inductor	LAU470K
	L204	Ferri-Inductor	LAU2R2M
	T201	Coil	CTB1003
	T202	Coil	CTB1004
	T203	Coil	CTB1006
	T204	Coil	CTE1006
	T205	Coil	CTE1007
	T206	Coil	CTE1008
	X201	Crystal	CSS1014
	CF201	Filter	CTF1027
	CF202	Filter	CTF-100

RESISTORS

Mark	Symbol & Description	Part No.
	R201 – 203	RD1/4PS□□□JL
	R206, 211 – 213	RS1/8S□□□J
	Other Resistors	RS1/10S□□□J

CAPACITORS

Mark	Symbol & Description	Part No.
	C201, 217, 223, 228	CKSQYB103K50
	C202	CKSYB332K50
	C203, 215, 216, 219	CKSQYF473Z50
	C204, 208, 210	CKSQYB223K50
	C205, 213	CCSQCH220J50
	C206, 207	CCSQCH820J50
	C209, 224	CEA470M16LS
	C211	CEA010M50LS2
	C212, 214	CKSQYB332K50
	C218	CEA2R2M50NPLL
	C220	CCSQCH470J50
	C221	CCSQCH100D50
	C222	CSZA010K25
	C225	CKSQYB273K25
	C226	CKSQYF104Z25
	C227	CEA220M16LS

Keyboard Unit

Mark	Symbol & Description		Part No.
★	D803 – 807	LED	LN41C
★★	IL803	Lamp, 14 V40 mA	CEL1004
★★	S501 – 507, 508-A, 508-B, 509 – 512	Switch	CSG-253
	R803		RD1/4PM□□□J
	R804		RD1/2PS□□□J

LED P.C. Board

Mark	Symbol & Description		Part No.
★	D901, 902	LED	LN41C

Switch P.C. Board

Mark	Symbol & Description		Part No.
★★	D1		FISR35-100A
★★	S1, 2	Switch (Mute, Motor)	ESN1001
★★	S3	Switch (Tape/Tuner)	HSK-126

P.C. Board Unit

Mark	Symbol & Description		Part No.
★★	S1	Switch (FWD/REV)	ESH1001

Miscellaneous Parts List

Mark	Symbol & Description		Part No.
★★	HD1	Head	EPB1001
★★	M	Motor Unit	EXA1013
★	SO1	Solenoid	EXP1001

12. PACKING METHOD

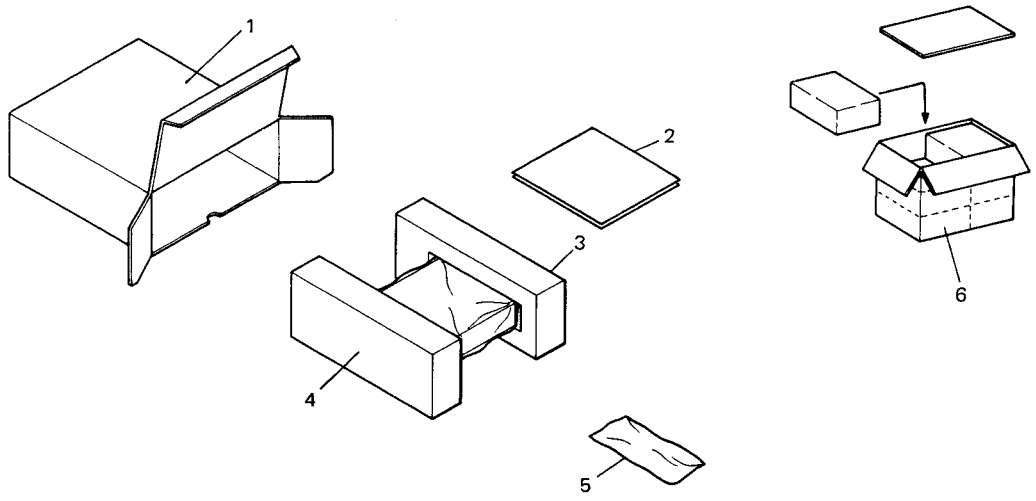


Fig. 15

• Parts List

Mark	No.	Part No.	Description
	1.	CHG1303	Carton
	2.	CRD1137	Owner's Manual
			Card
			Card
	3.	CHP1067	Styrofoam
	4.	CHP1066	Styrofoam
	5.	CEA1209	Accessory Assy
	5-1.	CDE1289	Cord
	5-2.	CNF-111	Strap
	5-3.	CNV1009	Bush

Mark	No.	Part No.	Description
	5-4.		Screw Kit
	5-4-1.	CBA-102	Screw
	5-4-2.	CBA1002	Screw
	5-4-3.	NF50FMC	Nut
	6.	CHL1303	Contain Box

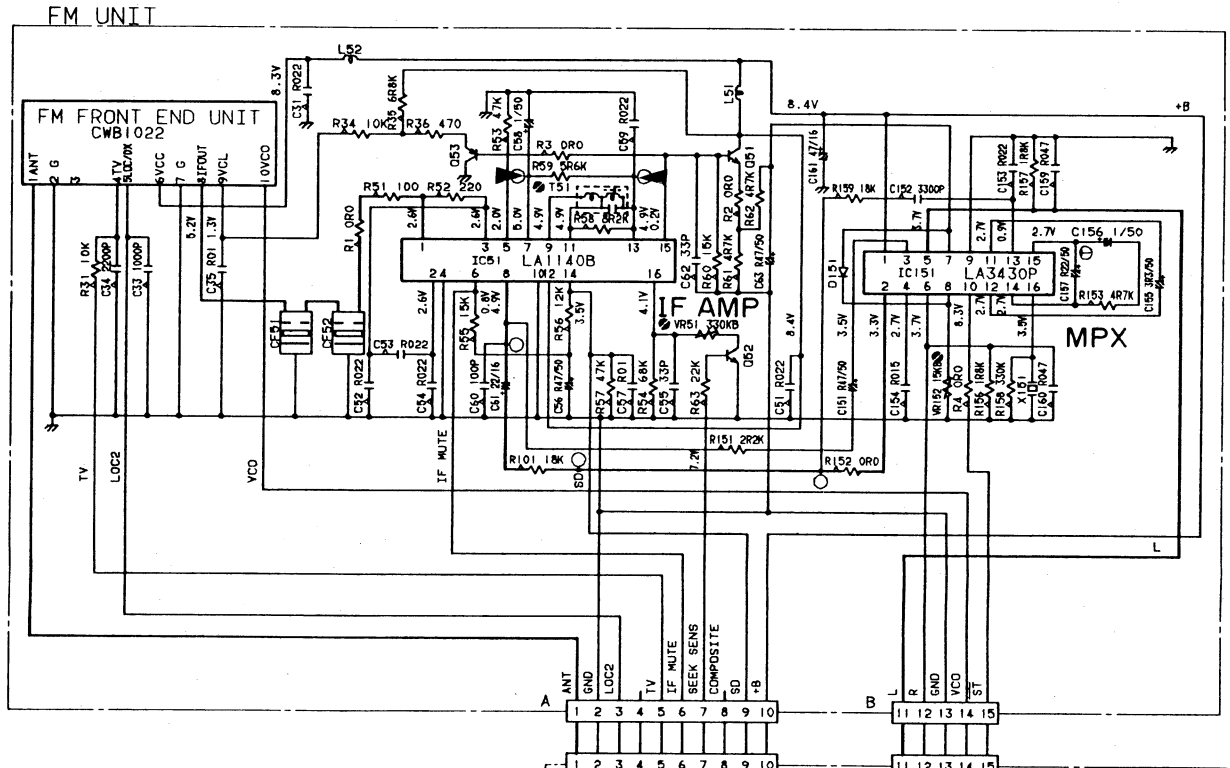
NOTE:

Indicates a chip capacitor.

Indicates a chip resistor.

FM UNIT

Q51,52	2SC2458 (2SC1740S)
Q53	2SA1048
D151	US1040M (1SS133) (1SS176)



AM UNIT

Q201	2SK435
Q202	2SC2458 (2SC1740S)
D201,202,204,205	US1040M (1SS133) (1SS176)
D203	SVC203-AB

TUNER AMP P.C.BOARD

Q401,402,501,502,508 511,514,515,517,518 601,602,605,607,608 651,652	2SC2458 (2SC1740S)
Q506,507	2SA1150
Q509	2SC2498 (2SC2026)
Q510,606,609	2SA1048 (2SA933S)
Q513	2SK330
Q516	2SC3113
Q603,604	2SD1012
Q653	2SC2634NC
D153,154,521	US1040 (1S2473) (1S1555)
D207,208,251,253,254 501~508,512,516,525 601~604,606	US1040M (1SS133) (1SS176)
D252,651	HZS7R5EB2 (MTZ7R5B)
D401	HZS9R1EB3 (MTZ9R1C)
D513	HZS8R2EB1
D514	HZS3R0EB2
D515	SD103A
D518	HZS5R6EB2 (MTZ5R6B)
D522	1SS135
D607	HZS10EB2 (MTZ10B)
D801	ERA15-02Y

TUNER AMP P.C.BOARD

LCD	CWW1039		
B501	CEX1002	BATTERY 3V	
S401	CSG-186	MS SWITCH	ON-OFF
S651	CSG-207	LOUNDNESS SWITCH	ON-OFF
VR451,452	CCS-401	TREBLE,BASS	
VR453/S801	CCS1037	VOLUME,BALANCE,FADER/ TUNER POWER SWITCH	ON-OFF

FM UNIT

VR51	CCP-254
VR152	CCP-246

KEYBOARD UNIT

IL803	CEL1004	LAMP 14V 40mA	
S501~512	CSG-253	SWITCH	ON-OFF

SWITCH P.C.BOARD

S1	ESN1001	MUTE SWITCH	ON(EJECT)-OFF(PLAY)
S2	ESN1001	MOTOR SWITCH	ON-OFF
S3	HSK-126	TAPE/TUNER SWITCH	TAPE-TUNER

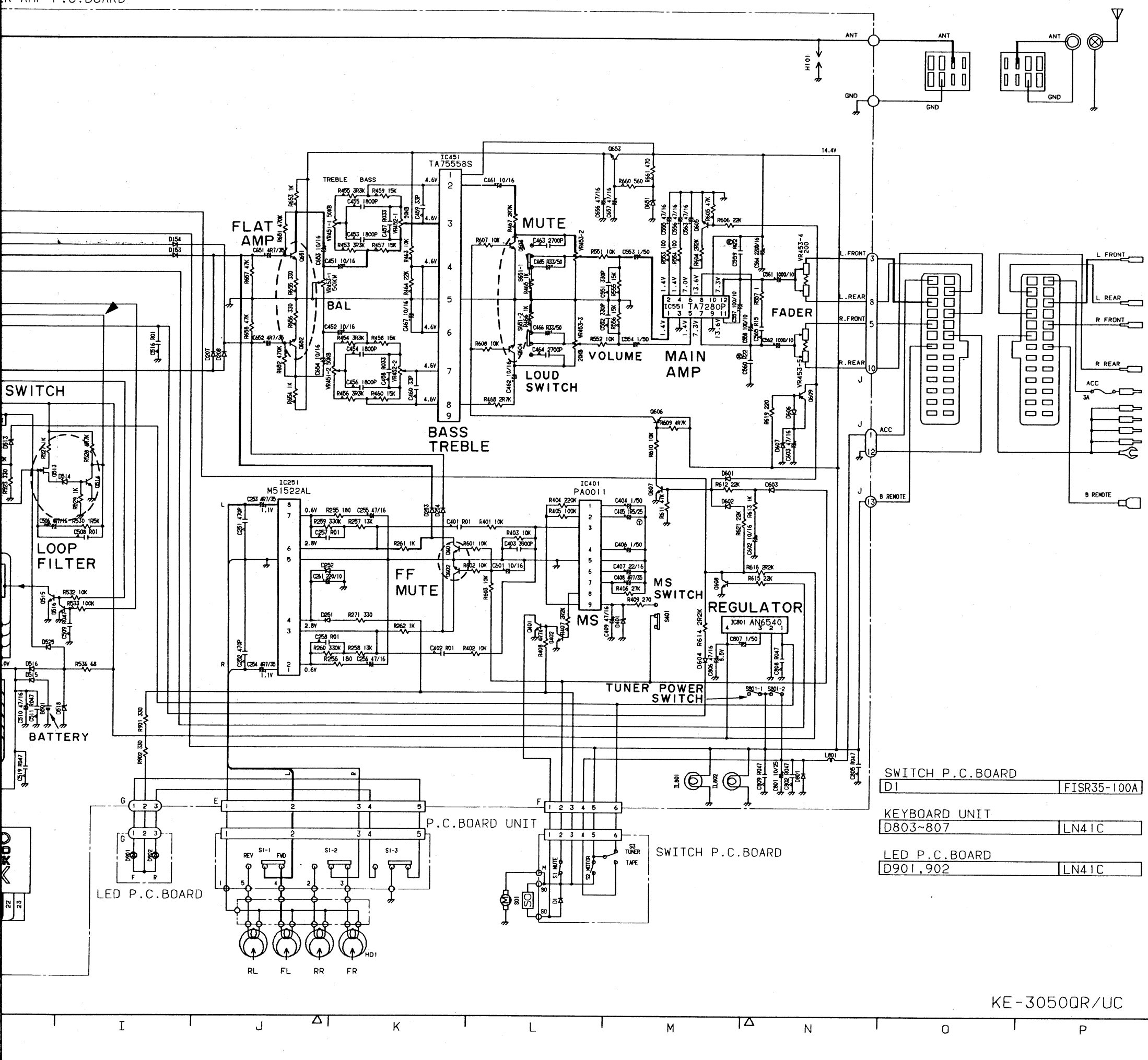
P.C.BOARD UNIT

S1	ESH1001	FWD/REV SWITCH	FWD-REV

MISCELLANEOUS PARTS LIST

HD1	EPB1001
M	EXA1013
SO1	EXP1001

NOTE: Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022



SWITCH P.C.BOARD

D1	FISR35-100A

KEYBOARD UNIT

D803~807	LN41C

LED P.C.BOARD

D901,902	LN41C

KE-3050QR/UC